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## Encouragement in the Budget

**I**NCENTIVES, the form they should take, and their desirability or otherwise, have been discussed so much in recent years that the average citizen may well have come to regard them as a subject for philosophical debate rather than a concrete inducement. Now, in Mr. R. A. Butler's budget introduced on Tuesday, tangible incentives of the kind best understood by all who work for wages or salary are offered in the form of income tax reliefs. At the same time the necessary realisation of the country's difficult financial position will be brought home to all by the reduction of food subsidies from £410 million to £250 million and the consequent increase in the price of many foods. The valuable feature of this budget is that the individual has freedom of choice in how he spends the money he earns. Even if in the final issue his personal income and expenditure bear much the same relation as before, he will have had the satisfaction of seeing a fair return for any extra effort he may have made. This freedom to earn and to spend on necessities according to personal judgment is likely to create the climate necessary for the hard work essential to national recovery. The increase in family allowances, also, should be a further antidote to the feeling of defeatism that in recent years has been a brake on effort. All these personal factors will be beneficial to the transport and engineering industries and should help to offset by higher productivity some budget proposals necessarily of

a less agreeable kind. The increase in fuel tax is likely to have repercussions in the months to come, and has been estimated already to involve an increase of £5 million a year in the running costs of the British Transport Commission. A tendency to return to railway travel may also be seen among those who at present are week-end motorists, and it will be the task of the Railway Executive to stimulate such a trend with attractive facilities.

## Responsibility for Fare Fixing

**T**HE extent of public opposition to the increases in passenger fares is shown by the Government disclaimer as to responsibility for fare-fixing reproduced elsewhere in this issue. The wide publicity given, last April, to the British Transport Commission's desire to raise fares as announced in its Passenger Charges Scheme, 1951, and the ample opportunity for stating objections to the scheme before the Transport Tribunal last summer and autumn, have not prevented many of the travelling public from feeling surprise, dismay, and even indignation at the higher fares they now find themselves having to pay, or about to pay; and there is a tendency, which has received some political encouragement, to blame the Government for the decision to allow fares to be raised. Under the existing procedure the Transport Tribunal and in certain circumstances, none of which obtained in this instance, the Minister of Transport authorise such fare increases as are beyond the competence of the Commission. The Minister, however, is to refer the allocation in London bus fare stages, which was concomitant with the increase in fares, to the Central Transport Consultative Committee. The Committee has not hitherto been concerned in the passenger charges schemes, and short of duplicating the work of the Tribunal, it can hardly do more than recommend to the Minister and to the B.T.C. certain principles of equity or expediency in determining fares.

## Colonial Office Adviser on Inland Transport

**A** VALUABLE service both to the Colonial Office and the Colonial railways will cease on March 31, when the post of Adviser on Inland Transport to the Secretary of State for the Colonies is abolished on the grounds of economy. The post has been held since January, 1948, by Mr. A. J. F. Bunning, a former Manager of the Nigerian Railway. Mr. Bunning has advised on all questions of inland transport in the Colonies, in whose interests, as will be seen from a biography elsewhere in this issue, he has travelled widely. Probably the greatest value of the appointment lay in Mr. Bunning's personal acquaintance with almost every senior officer in Colonial transport departments. The larger Colonial railway systems have their own specialised advisers, but to the smaller railways, many now suffering from run-down equipment and fierce road competition, the Adviser's services were often of great value. It is difficult to reconcile the continuance of five Advisers on Education in the Colonial Office with the decision to abandon the post of Transport Adviser, and now, when many Colonial territories are undergoing economic expansion, it seems particularly retrograde that so practical an office should fall victim to a reduction in Government expenditure.

## British Railways Overseas Representatives

**W**HEN Mr. A. J. Broughton, Irish Traffic Manager for British Railways, London Midland and Western Regions, retires on March 25, this title will cease to exist and will be replaced by that of General Agent for Eire. It may be said in justification of the change that it conforms with the title of certain British Railways representatives abroad, but this is a slender reason for adopting a title that in these islands conveys little of the responsibilities of the post except to those who have come to accept it through long familiarity. It would appear better to retain the word "Manager" in the title which would lend the post a status it will tend to lose under the new designation. In the light of the controversy which has been occasioned

in Eire recently over British Railways services, and the value of the traffics, it would be a pity to take any step which might alienate local sympathies or tend to belittle the position of the British representative.

### Government Subsidy to Meet G.N.R.(I.) Losses

THE Northern Ireland Government is paying in the current financial year £300,000 towards the losses of the Great Northern Railway (Ireland). The Minister of Commerce told the Northern Ireland Parliament that although the revenue and expenditure of the undertaking were subject to marked fluctuations from week to week, it was thought that the sum payable in this financial year would not exceed the amount in the estimate. A sum of £215,809 had already been paid to the company. It will be recalled that the Belfast Government agreed to pay 60 per cent. and the Dublin Government 40 per cent. of the temporary subsidy to offset deficits on the rail transport and hotels and catering activities of the company. The operating results of the company's road transport undertaking, which are wholly in the South, are excluded. Allowance must be made for a special increase in rail rates and fares imposed in the South during the year, and the exact share of the actual liabilities, which the company has been unable to defray and falling to be met from each area on the formula referred to, have yet to be calculated and agreed.

### Institution of Locomotive Engineers

THE number of members and guests attending the annual luncheon of the Institution of Locomotive Engineers which took place last Friday was 574. This approached very closely those attending last year's function, which was a record, and served to illustrate the continued interest taken in the Institution's annual luncheon. Mr. Julian S. Tritton, the President, said it had been decided to make this year's function a Commonwealth affair, and this was borne out by the number of distinguished guests present, who included Commissioners from many countries of the Commonwealth and Empire. Among them was Mr. K. V. Krishna Menon, High Commissioner for India, who as the principal guest, proposed the toast of "The Institution." He paid tribute to those British engineers who had established the Indian railways some 100 years ago—a system which provided the principal means of distributing food to the people of India. Referring to the railways of India in his reply, Mr. Tritton said the vast system was built under British private enterprise and was operated for the major part of its existence by British engineers, and it was his experience that the members of the Commonwealth preferred to buy British.

### British Railway Speed Today

AN editorial article in our issue of February 29 drew attention to the postwar development of world railway speed, and to the lowly place now taken in this respect by Great Britain, which in former years enjoyed a high, if not the premier, position. A news article in the same issue gave a comparison between a representative selection of overall journey times on the Continent in 1913 and 1951. In only two of the examples tabulated, namely, Amsterdam to Rotterdam and Madrid to Seville, were the times longer in 1951 than in 1913; on many of the other routes journeys had been curtailed in time by from 30 to over 40 per cent. Elsewhere in this issue, to complete the survey, we give a table showing the fastest journey times of 50 services between London and representative destinations in Great Britain, in 1913, 1919, and 1951. Of all the times tabulated, no more than seven were faster in 1951 than in 1913, four were equal, and all the remainder were slower. Two services only had recovered in 1951 to the 1939 level of speed. One of these was the service between Liverpool Street and Norwich which, if average journey times be taken, is not only the fastest in its history, but is even faster to-day than that between Euston and Birmingham or Paddington and Bristol.

### Works Capacity Available for Defence

DISMISSALS of staff due to steel shortage were reported early this week from the Swindon carriage works of British Railways. Although so far on a small scale, they are symptomatic of the situation on which we commented in our February 15 issue with reference to redundancy at Derby. Such dismissals, inevitable in present circumstances, may lead to valuable machinery lying idle, although its productive capacity and the services of skilled operators would be of the utmost advantage to the national defence programme. This is a direction in which the trade unions concerned could follow up the favourable impression created by the statement of the T.U.C. of readiness to co-operate with the Government in matters of national interest. If objections to the acceptance of defence work in railway shops were waived, the men could be retained in their present employment and the machines used to the full. Acceptance of such a policy would be necessary at all trade union levels. It has obvious advantages to the railway unions themselves in that it would keep members within their own ranks who otherwise might be lost to other industries and organisations.

### Coal-Fired Gas Turbine Locomotive

THE Ministry of Fuel & Power, after consultations with the Railway Executive, has placed an order for a prototype coal-burning gas turbine locomotive. The turbine will be supplied by C. A. Parsons & Co. Ltd., and the North British Locomotive Co. Ltd. will supply the mechanical portion. The locomotive, arranged with mechanical transmission, will be powered by a gas turbine of 1,800 h.p. giving a maximum rail horsepower of 1,600. Thermal efficiency is expected to be 10 per cent. at one-tenth load, 16 per cent. at half load, and 19 per cent. at full load. This latest gas turbine locomotive will be the first with mechanical transmission. The Brown-Boveri gas turbine locomotive, described and illustrated in our May 5, 1950, issue, and the Metropolitan-Vickers gas turbine locomotive, described and illustrated in our February 1 issue, are both provided with electrical transmission. Some time must elapse before the new locomotive is completed, since somewhat different problems arise on questions of design, such as disposal of ash and so on, compared with the gas turbine locomotives already in service. The completion will permit further experiments in these forms of motive power, the results of which should be of considerable interest.

### The Nord Locomotive Tradition

THE express locomotives working over the Northern Region of the French National Railways are in a distinguished line of succession, and the latest example, described elsewhere in this issue, is no exception. The Nord reputation was established with the 4-cylinder du Bousquet Atlantics, compounded on the de Glehn system, whose work attracted such attention that three locomotives of this type were acquired in 1903 and 1905 by the Great Western Railway for comparative trials against Churchward 4-4-2s and 4-6-0s. In 1910, Asselin introduced a 4-cylinder compound 4-4-4, whose trailing bogie supported, for the first time in Nord practice, a wide firebox providing 38 sq. ft. grate area. It was overshadowed a year later by two 100-ton 4-cylinder compound 4-6-4s, one built in the La Chapelle shops of the Nord, and the other by Schneider of Le Creusot. The Schneider engine had a water-tube firebox with 1,270 sq. ft. heating surface, in addition to 2,630 sq. ft. tube heating surface. Apparently they were ahead of their time, for little was heard of their performances; like the contemporary G.W.R. *Great Bear*, they may have been unsuited to the track of the period.

### The Latest Nord 4-6-4s

THE 4-6-4 type did not reappear for thirty years. Meanwhile, came the Asselin Pacifics of 1912, the Bréville super-Pacifics of 1924, and the even more efficient Collin

super-Pacifics of 1931, which, all 4-cylinder compounds, have handled the heaviest Nord passenger duties, apart from the Chapelon Pacifics of Paris-Orleans origin, until the advent of the new 4-6-4s of de Caso design. While the designer has experimented with 3-cylinder simple propulsion in three of the 4-6-4s, in the most recent, No. 232.U.1, he has reverted to 4-cylinder compound propulsion, but, for the first time in France, with two sets of Walschaerts valve motion only, operating all four piston-valves by a system of h.p. and l.p. linkage. Novel arrangements supply boiler steam direct to the l.p. cylinders, and, as far as possible, equalise pressure on the four pistons at all speeds; this is performed automatically, so that the locomotive is as easy to handle as one with simple propulsion. On test runs, No. 232.U.1 exerted d.b.n.p. output of 2,000 to over 2,500 for indefinite periods, sufficient to keep a 560-ton train in motion continuously up a 1 in 200 gradient at between 75 and 80 m.p.h.—and this on an average consumption of 61·8 to 73·4 lb. per mile of mixed briquettes and slack, and 43·3 to 45·4 gal. per mile of water.

### Operating Developments in Scotland

TO a greater extent than the other Regions of British Railways, which on nationalisation conformed roughly with areas of England and Wales covered by the four main-line railways or their divisions, the Scottish Region was a fusion of entirely separate railway systems. In general, the L.M.S.R. served the West and the Highlands, and the L.N.E.R. the East of Scotland, though there were many penetrating lines; the L.M.S. Northern Division, as successor to the Caledonian and Glasgow & South Western, and the L.N.E. Scottish Area, as successor to the North British, also had commitments south of the Border. The resultant duplication of operating resources and train services among other matters, called for far-reaching changes. A summary of these as outlined for us by Mr. F. C. Margetts, Assistant Operating Superintendent, Scottish Region, shows what has been done in the first four years of nationalisation.

The first year was spent in perfecting a headquarters administration in Glasgow to take the place of the two separate head offices; determining the new operating and commercial Districts; shedding to the North Eastern and London Midland Regions lines located in England but previously administered from Scotland; and deciding upon a plan of campaign. On January 1, 1949, the districts of the operating, commercial, and motive power departments were re-organised to provide for seven operating districts: Aberdeen, Ayr, Burntisland, Edinburgh, Glasgow, Inverness, and Perth. The district officers at Aberdeen, Ayr, Inverness and Perth were joint operating and commercial appointments, designated District Traffic Superintendents, and the other three purely operating. At the same time it was decided to analyse all streams of freight traffic in the Region so as to determine how movement could be improved by concentration of traffic hitherto moved by separate routes, by closing exchange points, avoiding marshalling yards, raising the classification of freight trains, and, in general, taking every advantage of the opportunity provided by merging the two systems. Squads of investigators began in the North and worked down through Aberdeen, Dundee, and Perth to Edinburgh, and thence via the three routes from the latter centre to Glasgow. Emphasis was placed on elimination of exchange points, as far too much traffic seemed to be passing unnecessarily through these junctions; an increase in the number of through trains over lines previously separately owned seemed likely to improve operating efficiency and go far to reconcile the staff to new methods. The investigation is still proceeding, but the results already obtained demonstrate its value.

In routing traffic there had been a tendency, despite pooling and closer-working schemes, for the two companies to work traffic by their own routes. On nationalisation,

it was decided at the outset to ignore the long-established routing instructions which had applied between the two systems in Scotland, but to adhere to the routing between Scottish and English stations unless there was good reason for seeking agreement for alterations from the other Regions. Drastic alterations have been made in the routing and concentration of traffic, and services have been augmented and altered to meet traffic fluctuations. There is now a high proportion of fully-fitted class "C" trains, a far more ambitious service than the L.M.S.R. and L.N.E.R. could provide. One of the traffics re-organised since nationalisation is that of seed potatoes to the South; this includes consignments for shipment to South Africa via Southampton.

Coal movement also was examined closely, and particularly the working of coal trains and empties from and to the Fife coalfield; the resultant fundamental alterations in the working of traffic over available routes and the introduction of long-distance through services has caused a marked reduction in the number of wagons to be handled in many yards, and made it possible to discontinue using certain yards or to reduce their function, either as marshalling yards for through traffic or as exchange points. These include North Leith (ex-L.N.E.), Greenhill Upper and Lower, and Whifflet. Many consequential economies have been made in staff and engine power; as the examination of traffic flow through many yards still to be examined continues, even greater economies are expected.

The weekly mileage of braked trains originating in the Scottish Region has been more than trebled since nationalisation. Most fully-fitted services are in the up direction and so provide for traffic to England. The aim is to institute services from main centres in Scotland to the principal receiving points or distribution yards in England, of which an example, a train from Joppa to Whittemoor is illustrated on page 296. The contribution from smaller centres and the agricultural areas has not been overlooked, and is catered for by a network of feeder services. This has called for an unceasing campaign against the misuse of fitted stock, with detailed analyses of wagon user and spot checks. These measures and widespread publicity regarding the reasons for fitted stock being built were all necessary before satisfactory loading was achieved. Deceleration is not permitted even when loads are light, so as to emphasise to the staff the importance of maintaining the scheduled classification. The services contrast with prewar, when through trains from Edinburgh to Whittemoor, and so on, did not exist even at lower classifications. By running trains in series at fairly equal speeds, it has been possible considerably to augment the number of trains, particularly over the Edinburgh-Berwick line.

Development of the Fife and Lothian coalfields, and increasing rail haulage of coal thence to steelworks, power stations, and so on, largely in and around Glasgow, instead of shipment from Scottish East Coast ports, has raised further problems. In anticipation of the coalfield developments the L.N.E.R. and, later, the Scottish Region, prepared schemes for enlarging existing mineral yards to keep pace with increasing colliery output. The first stages of expansion are nearing completion, and even larger schemes of marshalling yard development are under consideration at Thornton (Fife) and in the Lothians. These costly schemes, however, have been embarked upon only after the attainment of maximum efficiency with existing facilities and are designed to handle a greatly increased traffic at a lower cost than at present. As has been done for merchandise traffic, schemes for nominated loading of coal, and campaigns to improve loading, have been pursued in association with the National Coal Board.

Control and distribution of all freight rolling stock and associated equipment throughout Scotland was vested in the Operating Superintendent, Glasgow, in March, 1948. Since then, merging of the separate interests and quicker movement resulting from freer balance obtained in the utilisation of the rolling stock within an enlarged area has much increased wagon availability. Sustained drives to improve wagon availability and loading have also helped.



The average terminal user time for all classes of wagons handled in Scotland fell from 2.16 days in January, 1949, to 2.1 in January, 1952, and the average loading of mineral and coal wagons rose from 9.3 and 10 tons in 1948, to 10 and 10.4 tons respectively in 1951.

In passenger traffic there was neither the opportunity nor the need to merge or rearrange train working to the same extent as in freight working. Each of the main routes to and from England, the Highlands, Aberdeen and beyond, caters for well-defined streams of traffic between widely separated localities. As there are few cross-country routes, other than between Edinburgh and Glasgow, which carry frequent well-patronised services, it seems unlikely that the future will see any marked change in the general pattern of services. Steps have been taken to improve punctuality, eliminate redundant station stops, and withdraw uneconomic mileage.

Branch lines serving sparsely populated areas have been subject to special examination. Usually it was found that the volume of freight was sufficient to justify keeping branches open to traffic after the withdrawal of the passenger train services and the passenger train service has in consequence been withdrawn from 108 stations on 27 branch lines which, however, are still available for freight traffic.

### New Zealand Government Railways

THE report on the New Zealand Government Railways for the year ended March 31, 1951, received from Mr. F. W. Aickin, who retired recently from the position of General Manager, shows a record gross revenue of £22,085,491 and a record expenditure of £22,079,701. This is considered very satisfactory having regard to all adverse factors, and is the first year since 1945-46 that revenue has exceeded expenditure. The surplus of £5,790 would undoubtedly have been larger but for industrial disturbances; the working loss in 1949-50 was £1,055,556 so that the improvement over that year's result was £1,061,346. Of the total gross revenue, £18,500,344 was derived from railway operation, £3,056,983 from subsidiary services—mainly road and refreshment services—and £528,164 from miscellaneous revenue. The railway operating revenue came £11,866,322 from the North Island, £6,612,545 from South Island, and £21,477 from the Nelson Section.

The following are some of the more important results of working:—

	1949-50	1950-51
	Millions	
Passenger journeys ... ..	25.9	24.8
Goods tonnage carried ... ..	9.9	9.6
Total train-mileage (revenue) ... ..	14.4	14.2
	£ millions	
Coaching traffic earnings ... ..	3.3	3.2
Goods traffic earnings ... ..	12.4	15.0
Total operating revenue ... ..	16.1	18.5
Net operating results ... ..	-1.3	+0.006

The main factor responsible for the decreases in passenger journeys and goods tonnage was the series of three strike periods during the year. In June, July and August, 1950, the coal strike occurred, followed by the railway strike in December. Then the waterfront strike seriously held up the overdue coal and other traffic, and necessitated curtailment of passenger services. Goods tonnage was also adversely affected by the incidence of two Easter holiday periods in this fiscal year. Some 543,000 tons decrease in tonnage resulted from these setbacks, and the remainder of the year showed an increase of over 210,000 tons, giving a net decrease of 332,400 tons or 3.34 per cent. Nevertheless, the haulage effort was better than in any other year except 1950, the gross ton-mileages being 3,835 million in 1949-50 and 3,791 million in 1950-51. Length of haul continued to increase, the average mileages being 76 miles in 1938-39, 103 in 1949-50 and 107 in 1950-51. Despite all handicaps freight revenue exceeded the previous year's record by over £2½ million or about 20.5 per cent. This is accounted for by enhanced rates—which are estimated to have produced £2,340,000—coupled with the longer haul.

The total increase in expenditure, amounting to £1,482,961 was made up of £822,564 to cover rise in wages and salaries, £431,950 for coal and oil, £83,094 for track renewals and depreciation, £89,542 for miscellaneous expenditure, and £55,811 for stores and materials. The consumption of coal fell from 527,882 tons in 1949-50 to 456,165 tons in the year under review, but the cost of it rose from £1,791,064 to £2,223,014, or by over 24 per cent. It is significant that consumption per 1,000 gross ton-miles varied between 392 lb. in 1938-39, 435 lb. in 1949-50, and 418 lb. in 1950-51, whereas the cost in pence per 1,000 gross ton-miles rose from 64 to 107 and 136 during those years, respectively.

All class "K" and "KA" locomotives are now oil-burning, as well as 12 "J" class. They are all in service in the North Island, where they are responsible for 40 per cent. of the train-mileage. Revenue from road services, £2,107,513, was £73,622 or 3.62 per cent. higher than in the previous year, but gross expenditure was £2,160,017; there was thus a loss of £52,504 on this part of the undertaking, as against £69,654 in 1949-50. Sixty-two new vehicles were added to the fleet during the year.

The report concludes on a personal note in view of Mr. Aickin's then pending retirement in July, 1951. He points out that during his three years' tenure of office as General Manager record tonnages were moved with an insufficiency of locomotives, wagons, and staff. In collaboration with his senior officers he had given much study to future requirements, so that the railways, the backbone of the transport system of the Dominion and a vital factor in its economy, should be prepared well ahead of, and not wait for, the increased traffic that would have to be carried. With this end in view, the following orders had been placed in Great Britain during the past three years: 35 double-unit diesel railcars, 46 diesel and 15 diesel-electric shunting engines, 31 diesel-electric main line locomotives, 16 JA class oil-burning steam locomotives, and about 5,000 wagons of various types. Planning for the Auckland-Frankton Junction main line electrification was well forward, and general motive power requirements were based on its being in operation by 1955.

### U.S.A. Railway Locomotive Position

DESPITE some persistent advocates of the main locomotive, the U.S.A. railways extend the use of diesel-electric motive power at an astonishing pace. Last year they withdrew 4,083 steam and 13 electric locomotives from service, while they installed 18 new steam and three new electric engines; they retired 41 diesel-electrics, but installed 2,537 new machines of the latest types. The resultant position of their locomotive stock at January 1, 1952, is shown by the table below:—

U.S.A. Railway Locomotives, January 1, 1952

Type	Stock	Number awaiting repairs	Awaiting repairs percentage
Steam ... ..	21,200	2,718	12.8
Diesel-electric ... ..	12,326	158	1.2
Electric ... ..	691	28	4.0
Total ... ..	34,217	2,904	8.4

On January 1 the railways had on order 19 steam, one electric and 1,719 diesel-electric locomotives, so that the changeover to the new form of power will continue during 1952. About 17 years ago one or two railways in the Central Western Region used diesels for the first time to speed up passenger services. Now the diesels occupied in hauling freight trains may outnumber those in passenger train workings. The U.S.A. railways are predominantly freight carriers. They use only 5,000 road passenger locomotives, while using intensively some 19,000 road freight locomotives. More than a third of the total locomotive power is at work in the Eastern District, which may fairly be compared with the "heavy" Regions of British Railways. Cities are not far apart, there is a dense traffic,



and competition with road, water and air transport is keen. The movement in bulk of grain, coal, iron ore and steel is regulated methodically. Fast freight trains of specially equipped wagons cater for high-class merchandise, giving, for example, second morning delivery of New York goods in Chicago over 900 miles distant.

Though the Eastern Railways draw about 31 per cent. of their freight revenue from products of mines, nearly all of them have turned to diesel traction since the war. In September last the Lehigh Valley abandoned steam working completely. For many years its "Black Diamond" express between New York and Buffalo was one of the best known passenger trains in the world, but its staple business is the movement of freight over 1,234 route miles in Pennsylvania and New York State. The density of the Lehigh Valley's freight traffic exceeds by nearly 70 per cent. the density in the London Midland Region of British Railways. Its President stated recently that it has made economies by "going 100 per cent. diesel."

The New York, New Haven & Hartford Railroad is like the East Anglian area of British Railways. Its lines are electrified from New York to New Haven and it carries in a year 25 million season ticket holders, but only 17 million ordinary passengers. Some 26 passenger trains pass over each of 900 route-miles every day at an average speed of 37 m.p.h., piling up a train mileage which is 2½ times the mileage worked by freight trains over 1,770 route miles. The New Haven has a greater density of freight traffic than the Eastern Region of British Railways and moves an average train load of 1,110 short tons at 14 m.p.h. In 1950 its operating ratio was 76 per cent. Before the war, the New Haven used nearly 600 steam locomotives outside the electrified area. Since 1941 it has built up a fleet of 378 diesels. When the Spring timetable comes into force on April 27, the use of steam power will cease entirely.

Another busy carrier in the Great Lakes region, the Erie Railroad, plans to adopt diesel traction for all but a few suburban passenger trains by the year 1953. Possessing a route from New York to Chicago, with branches to important places like Buffalo, Cleveland and Dayton, the Erie operates 2,230 miles in freight service and 1,290 in passenger service. The density of its freight traffic is double that of the London Midland Region. The Erie serves a highly competitive area and has the reputation of training all-round railwaymen. Its decision in favour of diesels will not have been taken lightheartedly.

The spread of diesel traction may have been hastened by the decision of the New York, New Haven and Hartford and the Pennsylvania to install diesels instead of extending their electrified areas. At all events the diesel has become the general utility engine for U.S.A. railways of many different sizes and characteristics, from the Pennsylvania, with its 10,000 miles of road producing twice as many ton-miles as the 19,000 miles of British Railways, to minor lines, such as the "Monon," operating about 500 miles.

### British Transport Commission Traffic Receipts

THE traffic receipts of British Railways, excluding their C. & D. services, for the second four-week period of this year, to February 24, are some 16 per cent., or £4 million, up on last year. As the result of the 10 per cent. increases on April 16 and December 31, 1951, freight charges generally are some 21 per cent. higher than in the corresponding period of last year, so that the increase of only 19 per cent. in merchandise receipts indicates a slight decline in traffic; this is in accordance with the recent trend and seems to show a permanent loss of traffic to the roads. Mineral receipts, at some 24 per cent. over last year, show that the increase in traffic over 1951 recorded for the preceding period has been maintained. The increase of 20 per cent. over the corresponding period of last year in receipts from coal and coke traffic shows that traffic was much the same. Both mineral and coal class traffic receipts for Period 2 were markedly in advance

	Four weeks to February 24		Incr. or decr.	Aggregate for 8 weeks		Incr. or decr.
	1952	1951		1952	1951	
<b>British Railways—</b>	£000	£000	£000	£000	£000	£000
Passengers ...	6,322	5,907	+ 415	12,385	11,504	+ 881
Parcels, etc., by passenger train ...	2,606	2,386	+ 220	5,049	4,607	+ 442
Merchandise & livestock ...	8,660	7,294	+ 1,366	16,552	14,130	+ 2,422
Minerals ...	3,314	2,662	+ 652	6,587	5,244	+ 1,343
Coal & coke ...	8,316	6,911	+ 1,405	16,236	13,354	+ 2,882
	29,218	25,160	+ 4,058	56,809	48,839	+ 7,970
<b>British Road Services ...</b>	5,868	5,673	+ 195	11,628	10,726	+ 902
<b>Road, Passenger Transport:</b>						
Provincial & Scottish—						
Buses, coaches & trolley-buses ...	2,873	2,648	+ 225	5,778	5,236	+ 542
<b>London Transport—</b>						
Railways ...	1,208	1,203	+ 5	2,429	2,402	+ 27
Buses & coaches ...	2,497	2,321	+ 176	5,015	4,596	+ 419
Trolleybuses & trams ...	656	729	- 73	1,322	1,469	- 147
	4,361	4,253	+ 108	8,766	8,467	+ 299
<b>Inland Waterways—</b>						
Tolls ...	76	58	+ 18	153	113	+ 40
Freight charges, etc. ...	97	73	+ 24	189	142	+ 47
	173	131	+ 42	342	255	+ 87
<b>Total ...</b>	<b>42,493</b>	<b>37,865</b>	<b>+ 4,628</b>	<b>83,323</b>	<b>73,523</b>	<b>+ 9,800</b>

of those for the preceding period, for which the milder weather as compared with Period 1 may have been in some degree responsible.

A factor influencing the slight increase in British Railways passenger receipts as compared with the second four weeks of last year was the rise of about 10 per cent. in monthly return fares as from January 1 last; receipts from monthly return fares at this time of year are about one-third of total passenger receipts, which for Period 2 are about 7 per cent. up on that period of 1951. Passenger takings for Period 2 slightly exceed those for the preceding four weeks. There is little to remark in London Transport receipts: both railways and buses show slight increases over last year's figure. Receipts from British Transport Commission road passenger undertakings in Scotland and the provinces are slightly reduced compared with Period 1; comparison with 1951 is vitiated by alterations in fares during the past twelve months.

British Road Services receipts are affected by the increases in rates in January and April, 1951. There is no apparent explanation of the considerable rise in inland waterways traffic receipts, compared with both Period 1 of this year and Period 2 of 1951; these traffics fluctuate greatly for various reasons.

The receipts from all the carrying activities of the Commission shown in these series now are some 90 per cent. of the whole. Largely as the result of increases in charges, they yielded some £10 million more for Period 2 this year than last, which compares with the increase of £5 million over 1951 recorded for the preceding period.

### PERCENTAGE VARIATION 1952 COMPARED WITH 1951

	4 weeks to February 24		8 weeks to February 24	
	1952	1951	1952	1951
<b>British Railways—</b>				
Passengers ...	+ 7.0		+ 7.6	
Parcels ...	+ 9.2		+ 9.5	
Merchandise & livestock ...	+ 18.7		+ 17.1	
Minerals ...	+ 24.4		+ 25.6	
Coal & coke ...	+ 20.3		+ 21.5	
<b>Total ...</b>	<b>+ 16.1</b>		<b>+ 16.3</b>	
<b>British Road Services ...</b>	<b>+ 3.4</b>		<b>+ 8.4</b>	
<b>Road Passenger Transport ...</b>	<b>+ 8.4</b>		<b>+ 10.3</b>	
<b>London Transport—</b>				
Railways ...	+ 0.4		+ 1.1	
Buses & coaches ...	+ 7.5		+ 9.1	
Trolleybuses & trams ...	- 10.0		- 10.0	
<b>Total ...</b>	<b>+ 2.5</b>		<b>+ 3.5</b>	
<b>Inland Waterways ...</b>	<b>+ 32.0</b>		<b>+ 34.1</b>	
<b>Aggregate ...</b>	<b>+ 12.2</b>		<b>+ 13.3</b>	

## LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

### Royal Funeral Train Locomotive

SIR,—May a very ordinary Englishman express regret at the sentiments contained in the two letters which appeared in your February 29 issue, under the caption "Royal Funeral Train Locomotive."

A nation steeped in tradition and united in sorrow and grief staged at short notice a ceremony of pomp and circumstance which was a model to a distraught world and the object of envy throughout that world. To British Railways, and those at Paddington in particular, are due the nation's thanks for the great part they played. Surely on such a solemn occasion criticism might well be hushed and stilled.

Yours faithfully,

C. E. R. SHERRINGTON

"Byways," 20, Queens Road, Belmont, Surrey

March 1

SIR,—Whilst in normal circumstances I would refrain from assisting in making too "much ado about nothing," the two letters in your February 29 issue make this impossible.

I completely agree with you on this matter, as does every intelligent "Westerner." I differ from Mr. A. C. Smith's choice of a "Castle" for preservation. Old *Windsor Castle* is a fine engine, we know, but choice is surely the grand and incomparable No. 4079, *Pendennis Castle*. Although it has no magnificent records to its credit, it has given continual good service for all its working years, and Bassett-Lowke Limited chose it for an excellent model.

The letter from "C.M.E." has surprised me. When I first saw your photograph reproduction, the immediate impression was the activity of the cylinder relief valves. Having again studied the picture carefully I am still convinced that these interesting but not uncommon fittings are responsible for the display. It is possible that the cylinder drain cocks are responsible, but I feel sure that it is the former.

I know some engines that never seem to make enough steam to leak anywhere, let alone move the train—but not on the "Western." Judging by the care that was put into "Ersatz 4082" (thank you, "C.M.E.", for that one!) not even a molecule could sneak out of the joints, anywhere, anytime. However, perhaps Mr. Earley himself, or even one of the footplate crew, would settle this matter for us.

Yours faithfully,

NORTH STAR

### Movement of Mineral Traffic

March 10

SIR,—The recently published Annual Report for 1951 of the Central Transport Consultative Committee is an interesting document, and reveals among other things that in the early part of the year the Railway Executive were in a serious position in regard to their ability to carry the mineral and merchandise traffics on offer. Considerable apprehension was felt in the heavy industries as to the eventual powers of recovery of British Railways to a point where they could meet the demands made on them for vital services.

It is now satisfactory to be able to record that during the year a most heartening recovery was made. Not only was the total tonnage of steel carried approximately the same as in 1950, but during the year the iron ore carryings were nearly 2,000,000 tons greater than in the previous year. What is perhaps of even more importance in some ways is that whereas early in 1951 there were over 47,000 tons of steel on the ground at steelworks, due to shortage of railway wagons or operational restrictions, the tonnage on hand at end of February, 1952, is negligible. This is the best position in which the railways have found themselves since the end of the war, as far as the steel industry is concerned.

At a time when British Railways are subjected to criticism from many quarters, some of it no doubt justified, it may be thought only fair that they should receive credit for what has been an outstanding effort over the past twelve months.

Yours faithfully,

F. SCOPES

Chairman, Transport Committee,

British Iron and Steel Federation,  
Steel House, Tothill Street, S.W.1.

### Missed Connections

March 3

SIR,—The unfortunate experience of Mr. Cecil J. Allen at Doncaster with a missed connection recalls the arrangement in force on the Western Region at Swindon. The 12 noon from Bristol to Paddington is booked non-stop from Swindon to Paddington and passengers for Didcot, Oxford and Reading change at Swindon into the 11.35 from Cheltenham to Paddington. If the train from Bristol is late the train from Cheltenham is sent on ahead of it and the train from Bristol makes extra calls at Didcot and Reading. Fortunately the present-day standard of Western Region timekeeping seldom calls for this procedure to be put into force.

Yours faithfully,

J. F. BURRELL

80, Longmead Avenue, Bristol, 7

### Operating on the Wath-Dunford Section

SIR,—During the past two and a half years, I have paid several visits to the Worsborough Bank, which, incidentally is the usual name of the 1 in 40 section. I have thus been able to make a fairly extensive study of the operating practice there. In addition I have travelled on the footplate up the bank on two occasions.

With steam traction, trains over the line were classified operationally into two types, double and single, the latter requiring only one locomotive from Wath to Dunford Bridge, except the two or so miles at 1 in 40, for which two bankers were attached. Double trains were banked throughout, and again two additional locomotives were provided for the ascent of Worsborough Bank, one as pilot and the other as a second banker. Never to my knowledge did speeds with the steam-hauled coal trains reach 12.15 m.p.h.

On my two footplate journeys the speeds were 5-10 m.p.h. only. Last October, the 31 wagon (single) train hauled by an "O4" 2-8-0 and banked by Beyer-Garratt No. 69999, ascended the bank at between 8½ and 9½ m.p.h. and we took 15½ min. for the ascent of the 1 in 40 from a standing start. The load was approximately 460 tons gross; this, according to my calculations, required a joint output from the two locomotives of some 20 tons of tractive effort, and 1,125 h.p., referred to level track. (In this and all the following examples, the resistance of the freight wagons is taken to be 15 per cent. greater ton for ton than that given by the Johanson formula. In each the effect of gravity on the locomotives is taken into account in making the calculations.)

On a previous occasion, a double train weighing approximately 960 tons gross, in charge of four 2-8-0 locomotives (two class "O4," one class "O1" and an "Austerity") ascended the bank in 23½ min. at speeds of between 4.7 and 6.4 m.p.h. Calculations gave the total of 38.2 tons tractive effort and 1,250 h.p. on this trip. If a double train were to ascend the bank at 15 m.p.h. as quoted, it would require approximately 3,200 h.p. and a draw-bar pull (and push) of 35½ tons. This represents 800 h.p. per locomotive. The only figure I can find for the low speed power output of Eastern Region eight-coupled locomotives relates to an "O1" class engine during the locomotive

exchanges. At 20 m.p.h. an output of 1,142 d.b.h.p. was recorded. Taking the output as proportional to the speed in the range 0-20 m.p.h., a horsepower of 860 would be expected at 15 m.p.h. (or 31 d.b.h.p./sq. ft. of grate area). Provided therefore all the locomotives on the train were in good condition, a speed of 15 m.p.h. might just be possible, given optimum conditions, hard working firemen and a dry rail.

I have not yet travelled over the bank since the introduction of electric working, but I shall be surprised if two electric locomotives succeed in reaching 30 m.p.h. with an 850-ton train on 1 in 40. This would require an output of all but 5,000 h.p., but the maximum rating of each of the locomotives is only 1,750 h.p., or 3,500 h.p. together. I would expect the balancing speed to be in the region of 20-22 m.p.h.

Yours faithfully,

P. W. B. SEMMENS

52, Belle Vue Grove, Middlesbrough

[The 1 in 40 section is properly called the Wentworth incline (on the Worsborough branch). All the timings given in our article "First British Main Line Freight Electrification" were obtained from official sources.—ED., R.G.]

### Railway Carriage Design

February 24

SIR,—Your correspondent Mr. G. Richard Parkes has hit the nail on the head in your February 1 issue.

British passengers have shown no preference for open coaches because they have never had opportunity to ride in any with comfortable, sensibly arranged seats. Existing designs all have the seats facing, in fours, usually with a table between them, designed seemingly to prevent window passengers reaching their seats without crouching almost double. Sir Nigel Gresley's designs were far better in this respect than those on the L.M.S.R.; they were also lighter inside because of the decoration scheme.

With seats back-to-back, the backs of the seats must be as nearly vertical as possible to minimise waste of space between them. This prevents passengers from reclining on a long journey. In design the new standard British Railways coaches are 20 years behind North American coaches—I am referring to the ordinary "day cars," not luxury Pullman-type vehicles. The compartment coaches have (with a partition between) the back-to-back seating already mentioned, and also only single glazed windows, which, in cold weather, cause much condensation. Because the outlet holes are always blocked, this condensation runs down on to the sleeves of the coats of those occupying the window seats. Four-a-side in a corridor coach compartment is uncomfortable in hot weather, but in a centre gangway coach it is comfortable and there is plenty of space for each passenger—seating capacity is increased by 33½ per cent. Against the weight of the extra passengers can be set the saving in weight by dispensing with the partitions between compartments and corridor.

Mr. Parkes wishes to go all the way in adopting the American style of seating, but I feel that rotating seats are unnecessary in Britain because of both the shorter average journey, causing more frequent turnaround of trains, and the fact that we must make our limited capital expenditure provide as much as possible in new equipment.

In 1947 an American-built stainless-steel coach, *Silver Princess*, was brought to this country but after being inspected by railway officers and consulting engineers, as the technical press described them, nothing more has been seen or heard of it! I suggest a design as follows, with points copied from that coach:—

A door each side at the centre of the coach to speed up unloading of passengers by 50 per cent.; seats with adjustable backs and footrests (like those of *Silver Princess*) facing towards the centre door and giving passengers the choice of facing "fore or aft"; glass anti-draught screens (as in London Transport stock) each side of the centre doorway in preference to timber screens,

so making the coach lighter in appearance; limited travel of pull-open ventilators (so that they can only extract air), and air inlet ducts; instead of the "fishing-net" luggage rack, the American, all-metal type which looks much tidier, does not attract the dust or catch buttons on coats placed on it, and wears better; double glass in the windows, below the ventilator portion, to eliminate condensation in cold weather. (This reduces noise transmission from outside, as I noticed in Canada during the war.)

These improvements would give a vehicle which would be a pleasure to ride in yet reasonably cheap to construct. The seating capacity would still equal that of a seven compartment corridor coach with four passengers squeezed in each side, and, having the centre doors of the same design, could be used for an electric main line service such as Fenchurch Street-Southend by providing sliding air-worked doors instead of hinged doors.

Yours faithfully,

R. A. PASCALL

72a, Quarry Green, Old Rough Lane, Kirkby, Lancs

### Preserving a "Saint" Class Locomotive

February 25

SIR,—In welcoming the decision to spare No. 4003, *Lode Star*, from the scrap heap, may I also make a plea for the preservation of a representative of the "Saint" class, as this class surely has an equal claim to fame. If, as I hope, an engine bearing the name of "Saint" is to be chosen, a decision will have to be reached quickly, as there is only one survivor—No. 2920, *Saint David*. No. 2920 is stationed at Hereford, a stronghold of this class for many years, and a shed from which latterly much of their finest work has been performed, mainly on the Birmingham-South Wales expresses, but occasionally on the heavily graded North to West line, where they have tackled loads of 14 coaches without losing time.

Yours faithfully,

J. S. WHITING

42, Fordwych Road, Welwyn Garden City

### Merits of Diesel Traction

March 2

SIR,—I should like to make a few comments on the letter by Mr. Frank Freedner in your February 22 issue. Mr. Freedner seems to be a steam locomotive enthusiast, who likes to throw "brick ends" at the diesel locomotive.

I have worked on oil engines for eight years myself and have never once seen an engine throw out unburnt fuel oil in the manner suggested. If any excess of fuel is injected into the cylinders during each compression stroke it is emitted through the exhaust in the form of black smoke. The remedy is the adjustment of the individual fuel pump concerned, usually by a calibration machine. The oily deposits he mentions would seem rather to come from a leaking oil or fuel pipe.

If the "Twentieth Century Limited" was on time for 50 per cent. and the "Empire State" for 33 per cent. of its runs, I consider that that is good going compared with some British main-line trains that are not on time for more than 10 or 15 per cent. What is needed here is some initiative, which does not seem to flourish any more in this country, except in small isolated circles. The closure of branch lines by the dozen seems to indicate a "We've had it" complex of thinking.

What about the diesel railcar, which the G.W.R. introduced for branch lines in 1934? Isn't there possible revenue in it? Ireland says so; as do France, Germany, Holland, Italy and other countries. Give the travellers a good, cheap, regular service than can be depended on and they will get passengers back on the railway by the thousands. I am surprised at the Railway Executive not pursuing a more forward policy on railcars.

Yours faithfully,

J. MORRIS

West View, Garden City, Elworth, Cheshire



## THE SCRAP HEAP

### Five-Day Seasons?

An idea for British Railways—why not issue season tickets from Monday-Friday inclusive? A great many City workers have no wish to travel to London on Saturdays and Sundays and therefore have a "dead" ticket for these two days.—*From a letter to the "Evening Standard."*

### Controlling the Climate

It is fantastic that railways which, with a 5 per cent. utilisation of fuel, easily hold the record for inefficiency in this respect, and which throw heat away right and left, should let their customers sit in the cold. The shivering traveller has to look on helplessly while clouds of wasted steam surround the train and settle down to heat the fields. May we ask who is the master of our discomforts? Is it left to the whim of the engine-driver to provide tolerable conditions for his passengers, or to condemn scores of them to many days of sneezing misery?—*From a letter to "The Times."*

### Railway Tombstones at Bromsgrove

Two tombstones side by side in Bromsgrove Churchyard, Worcestershire, record the deaths on succeeding days in 1840 of two employees of the Birmingham & Gloucester Railway. That on the left of the illustration below is in memory of Thomas Scarfe, aged 28, "late an engineer on the Birmingham and Gloucester Railway, who lost his life at Bromsgrove Station by the Explosion of an Engine Boiler on Tuesday the 10 of November, 1840." At the base of the tombstone is a poem of 18 lines "com-

posed by an unknown Friend as a Memento of the Worthiness of the Deceased."

The second tombstone commemorates Joseph Rutherford, Engineer to the Birmingham & Gloucester Railway, who died on November 11, 1840 at the age of 32. Both tombstones are illustrated with contemporary locomotives.

### Dodging the Tunnel

News that a West of England-London express was stranded for an hour and a quarter in the Box Tunnel this week would have caused a great stir a century or so ago, when it would have been regarded as a remarkable escape that passengers should have passed unscathed through such an experience. The question of survival in a tunnel was a good deal canvassed in the early days, and learned counsel angered Brunel by suggesting that no passenger could possibly survive two journeys through the Box Tunnel. This was an opinion so widely held, even by some doctors, that a good many people took what was considered a wise precaution in the early days of the Great Western Railway by leaving the train at the station before the tunnel, covering the distance between the two stations on the surface by chaise, and joining a train again when there was no longer any risk in doing so of exposure to the dangerous atmosphere of the tunnel.—*From "The Manchester Guardian."*

### At the G.N.R.(I.) Meeting

Although the annual general meeting of the proprietors of the Great Northern Railway (Ireland), held in Belfast yesterday [February 29], will probably be the

last, there was no air of sadness about the occasion. Lord Glenavy, Chairman of the directors, lived up to the description applied to him by one speaker—"the gay baron"—and enlivened the proceedings with the dry humour which, for many years now, has relieved the meeting from dullness. It was fitting that one Irish bull of a kind should be perpetrated at the exit of an Irish railway company, and the meeting responded gratefully to a speaker who declared, "I have been travelling in railway trains ever since I was able to walk."—*From the "Belfast News Letter."*

### Boadicea at Kings Cross?

This year London celebrates the centenary of Kings Cross Railway Station, which was opened on October 14, 1852.

The name Kings Cross is quite recent. Before the station was built the district at that end of the Euston Road was known as Battle Bridge, because of the tradition that it was the scene of the last great battle in which Boadicea and her Iceni warriors were finally routed by the Romans.

Boadicea was a great queen—the last British queen to lead her troops into the fray. If there is to be an historical exhibition on her last stamping ground then I think Boadicea and her chariot should certainly take her place alongside George Stephenson and his *Rocket*! —*From the "Evening News."*

### SS. "Hrntonia" (1912-1952)

We have grown grey together, you and I,  
Our hulls are battered and our steering gone,  
Rigging worn thin and engines not so good—  
'Tis time we both of us were passing on.

When we were young we neither knew  
nor cared  
What lay behind the skyline; swift and strong;  
We sought adventure, challenged the unknown  
With all the impetuous ardour of the young.

Now forty years have gone, a goodly span  
Of sun and shadow, not without a scar—  
The inescapable imprints of time,  
The deeper, sterner scourings of war.

How often have I seen you, after hours  
Of ceaseless battling through the stormy night,  
Snugged sweetly down at France's water-side,  
A bit of England in the morning light.

Goodbye, Old Lady, we at least have tried  
To grow old gracefully and thus contrive  
To put such good face on adversity  
That only happy memories survive.

A. B.



Tombstones in Bromsgrove Churchyard to the memory of two employees of the Birmingham & Gloucester Railway who died on succeeding days in 1840

(Photo)

(Kenneth A. Coldman)

# OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

## SOUTH AFRICA

### Delivery of Class "4E" Locomotives

Delivery is expected to begin in April of the first of the 40 class "4E" electric locomotives being built by the North British Locomotive Co. Ltd. in association with the General Electric Co. Ltd. The locomotives, which will be used on the Cape Western and Natal systems, have the 1-Co + Co-1 wheel arrangement and regenerative braking. [A brief description of them appeared in our October 1, 1948, issue.]

## BURMA

### Track and Bridges

War-neglected permanent way is still not up to the standard to allow increased speeds, because of scarcity of sleepers and ballast. It is still difficult to move ballast down to Lower Burma from quarries situated in the far north.

Good progress has been made on the major construction of bridges, but some schemes in unsettled areas have had to be postponed until military protection can be provided.

### Repair of Coaches

Two damaged stock specials consisting of 138 vehicles (reckoned as four-wheel coaches) left Rangoon for Myitnge Shops in January. There are still 499 damaged vehicles, and all will be sent up to Myitnge when the workshops accept them. Eleven coaches and 158 wagons were repaired at Myitnge, Insein, and Rangoon, and the erection of 10 new bogie third class steel coaches was completed.

### Rice Haulage

The State Agricultural Marketing Board sent by rail in January approximately 38,044 tons of export rice from the Toungoo and Promé sections to Rangoon. In the Henzada district 2,586 tons were brought down by rail from Danbi, Ywatha and Payagon to Henzada.

## ARGENTINA

### "El Capillense" Express

On the General Belgrano Railway the express "El Capillense" which formerly ran between Buenos Aires and Capilla del Monte in the Córdoba Hills, now runs only from Córdoba (General Mitre Railway), taking up passengers who have travelled to Córdoba by the night expresses of the General Mitre Railway. The coaches have been designed and built by Argentinians, and Argentine materials have been used.

The train consists of luggage van, kitchen car, dining car, and five first class coaches, and has a total capacity of 400 passengers. The coaches are 24 m. long and have been built on aerodynamic principles, the extra width allowing for wider seats and central gangway. The ball-bearing bogies have

been designed for use in mountainous districts with sharp curves; with the generous use of shock absorbers, easy riding and maximum stability are assured.

The coaches have been constructed from electrically-welded steel sheets; and high-class Argentine woods have been used for the interior decoration. The double windows are extra wide and are fitted with adjustable Venetian blinds. The seats are upholstered in brown leather. For the lavatories and toilet compartments, stainless steel sheeting has been used. Fluorescent lighting and a complete air-conditioning system are provided.

## BRAZIL

### Canadian-Built Diesel Locomotives

The 48 diesel-electric locomotives which the Montreal Locomotive Works is building for the Central Railway [as recorded in our February 8 issue] will be 1,600 h.p. and weigh 123 tons loaded. In many respects they resemble the dual-purpose M.L.W. road switchers well known in Canada. The builders are bringing ten Brazilian railwaymen to Canada and the U.S.A. for eight weeks' instruction in operation and maintenance.

## CANADA

### Plastic Headrests in C.N.R. Coaches

White linen headrests in Canadian National Railways parlour and café parlour cars are to be replaced by woven plastics. The new plastic headrests, in wine and silver, blue and silver, and green and silver colours, will become a permanent part of the chair backs. They will be washed with a detergent at the same time as the car is cleaned. Their use will eliminate the

work of removing each piece and sending it to the laundry after each trip, saving on the company's laundry bill and, because of the much longer life of the plastic headrests, in replacement costs.

Already in use on C.N.R. trains between Montreal and Ottawa, the plastic pieces will be added to all 1,740 seats in the company's 80 parlour and café parlour cars throughout the system.

## UNITED STATES

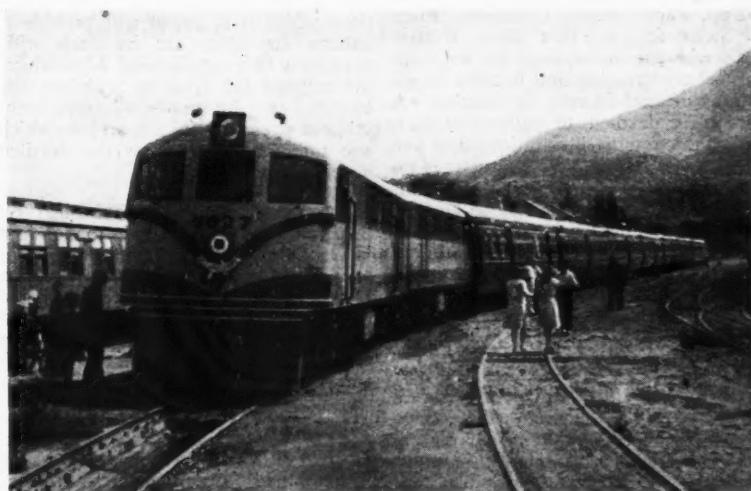
### Pre-Cooked Frozen Meals on Trains

Successful experiments have been made by the Chesapeake & Ohio, Chicago Rock Island & Pacific, and other American railways in serving meals that have been pre-cooked at central depots, subjected to quick-freezing and loaded in this condition into refrigerators on the dining cars, and then heated up in special ovens in the dining cars as required for serving.

The food is packed in the portions to be served, and the result of concentrating the cooking and portioning in a central commissary is so to reduce the staff required on the cars and to increase the speed of service that savings of up to 30 per cent. on restaurant car costs have been achieved. If the practice is extended, the effect on American restaurant car working, which hitherto has generally been conducted at a loss, will be considerable. On the Chicago Rock Island & Pacific Railroad this type of meal service was introduced on the "Des Moines Rocket" and "Peoria Rocket" diesel streamline trains on February 1.

### Diesel-Hydraulic Railcars

The use on American railways of the new Budd-built diesel-hydraulic railcars of the RDC type for secondary



Diesel-hauled "El Capillense" express of the General Belgrano Railway, Argentina, composed of Argentine-built stock

main line and branch services seems likely to extend rapidly. Their great advantage is economical operation, due in part to the low cost of fuel and also of maintenance (by the absence, compared with diesel-electric power, of the complication of electric drive). Further, a court case recently has decided, in favour of the railways and against the men's unions, that safe operation does not require the driver to be accompanied by a "fireman," so that a train crew of two, driver and conductor, suffices for operation.

The latest purchaser of railcars of this type is the Boston & Maine Railroad, which plans to introduce three of these cars with the summer train service on April 27. One will work between Boston, Nashua, Manchester, Concord, and White River Junction; a second between Boston and Troy, near Albany, N.Y.; and third between Springfield, Mass., and White River Junction, Vermont. Two of the cars will be of the RDC-1 type with 89 passenger seats, and the third will be an RDC-3 type car, with mail and baggage accommodation and seating for 49 passengers.

## MEXICO

### National Wagon Building Plant

Nacional Financiera, a semi-official finance organisation, has granted 70,000,000 pesos (about \$8,100,000) for the construction of a wagon manufacturing plant capable of producing from 1,000 to 1,200 units each year. This number is stated to be sufficient to meet the needs of the railways, as the plant will overhaul wagons needing repair.

It has long been maintained that modernisation of the railways would

be incomplete without facilities for building of box cars. A survey undertaken by Nacional Financiera revealed that all materials necessary for building wagons could be produced within the country.

The exact site of the new plant has not been determined, but it will be in the north. When in operation, it will do away with the renting of wagons from the U.S.A., and save considerably in dollars.

### Southern Pacific to be Renamed

According to an official decree the Southern Pacific Railroad of Mexico, recently bought by the Government, will now be known as Ferrocarril de Pacifico, S.A. de C.V. (Pacific Railroad). The Ministry of Communications & Public Works has announced that Mr. José Rivera R., has been appointed Managing Director of the system, and will be entrusted with its modernisation. A bond issue will be floated to obtain funds for the reconstruction of the railway.

## IRELAND

### Shop for Diesel Overhaul

A separate shop has been set up at Inchicore Works to overhaul and maintain diesel engines. C.I.E. has sanctioned purchase of the equipment, and a 2,100 sq. ft. shop has been set aside.

Power units only will be sent to the new plant for repairs and overhaul, as existing shops can easily handle railcar bodies and diesel locomotive frames. After dismantling, diesel power units will be brought to the shop and there mounted on cradles. In the shop there will be equipment to test fuel pumps and

injectors, recondition crankshafts and cylinders and maintain main, big- and small-end bearings.

As the engines are dismantled, the component parts will be de-greased and inspected, and after repairs have been carried out the engines will be run in and tested for output on the spot. Men already trained to handle diesel overhaul equipment will form the nucleus of the maintenance staff.

### Glenties Branch Closed

Services on the Stranorlar-Glenties branch of the County Donegal Joint Committee ceased on March 10. Road services have replaced them.

Since December, 1947, the line remained open only for the transport of fuel, livestock and bog ore, and there has been almost no traffic on it for some years.

### American Advisers Arrive

Mr. R. E. Mattson, General Superintendent of Transportation, Northern Pacific Railway, U.S.A., is the first to arrive of a party of American experts, who, as mentioned in our January 4 issue, are to advise the Board of C.I.E. He has already begun his survey, spending his first week in the Dublin district. He expects to be several months in the country.

Mr. Mattson is responsible for planning train operations on the N.P.R. and he reports direct to the operating Vice-President. His office plans the timetables and assembles information on operations. Mr. Mattson says that the distribution of wagons is the most important function of his office, and this work is aggravated by the great shortage of rolling stock in the U.S.A., because of shortage of steel.

## Publications Received

*Stahlbau (Steel Construction)*. By F. Stüssi and O. Wichser. Zurich: Polygraphischer Verlag. 11½ in. x 8 in. 152 pp. Paper covers. Illustrated. Price 26 Swiss francs.—This short treatise deals with the history and development of steel construction and modern applications of steel in civil engineering. A section is devoted to railway bridges, with photographic illustrations and line drawings of representative structures on Swiss railways. Examples depicted of steel station roof design include Geneva Cornavin and Zurich Hauptbahnhof. Brief mention also is made of different types of pylon for power transmission lines and cable railways.

*Job Grading*. London: The Office Management Association, 8, Hill Street, W.1. Price 10s. 6d.—As a result of suggestions that the *Clerical Job Grading Schedule*, first issued by the Office Management Association in 1942, should be more comprehensive and give more precise definitions of grades, a subcommittee of the Association was appointed, under the chairmanship of Mr. T. R. Thompson. This booklet is

the result of its discussions. The report covers aspects such as the need for grading of clerical work, the method of grading, and merit rating. The contents include five detailed grading specifications which it is hoped will provide a pattern for others to be dealt with eventually in a supplement. Meanwhile, the original *Job Grading Schedule* will continue to be published separately without alteration for use on jobs which are not yet covered by the detailed specification.

*Sands Across the Sea*.—Published by British Railways, this guide to holidays in Brittany, Normandy and Picardy is exceptionally good value for 1s. The interesting and informal descriptive notes are profusely illustrated with good photographs and amusing line drawings; there are several useful maps and a helpful general information section.

*C.I.E. Motorcoach Tours*.—Coras Iompair Eireann has brought out its programme of motorcoach tours for this year. There are day tours from Dublin, Cork, Waterford, and other centres, and six-, nine-, and eleven-day tours from

Dublin. For example, a nine-day tour from Dublin, taking in Sligo, Galway, Killarney, Glengarriff, Cork, and Wexford, costs 26 gns. including transport, accommodation, and meals. Where enquiries are made direct from C.I.E. they should be addressed to the Manager, Road Passenger Services, C.I.E., 59, Upper O'Connell Street, Dublin.

*Automatic Regulators*.—Details of Arca automatic regulators designed to cater for control problems involving the use of valves to regulate the flow of steam, gas, oil and so on, are given in an illustrated book published by British Arca Regulators Limited. Designs are available for the automatic control of pressures from zero to 5,000 lb. per sq. in. Valve sizes range from ½ in. upwards; the majority are arranged for operation by a diaphragm servo motor, and remote control can be provided where required. Also included are particulars of Arca temperature regulators, suitable for controlling temperatures in calorifiers and heating services, varying from 32° F. or lower, to 1,200° F., liquid level, and humidity regulators.



# British Train Services, 1913-51

*Comparison in the journey times  
between London and principal centres*

THE brief review in the February 29 issue of the changes which have taken place in long-distance Continental journey times between 1913 and 1951, that is, from before the first World War to the present time, prompts a similar examination of what has taken place in Great Britain. The accompanying table shows the fastest times between London and representative towns and cities in the Provinces and Scotland in the summer timetables of 1913, 1939, and 1951; the 1939 times are given so as to show the peak in speed which was reached on the four British main-line railways between the wars.

Of the fifty services listed, only two in the summer of 1951 had recovered in time to those of 1939—the 60 min. Southern electric service between London and Brighton and the Eastern Region 2 hr. 10 min. between Liverpool Street and Norwich. Moreover, of all the times tabled, only seven were faster in 1951 than the best times in 1913, namely, Glasgow and Newcastle by the East Coast route (28 min.), Edinburgh by East Coast (25 min.), Portsmouth, S.R. (10 min.), Cardiff, W.R. (8 min.), York, E.R. (5 min.), and Bradford, E.R. (one min.). Equal in 1951 to 1913, or not more than one min. slower, were Aberdeen by East Coast, Glasgow by West Coast, Leeds (E.R.), Norwich, and Brighton. All other times were slower after the interval of 38 years, and in some cases substantially so.

The effect of the streamline services on the 1939 times was considerable. Services so affected are marked by asterisks in the table, and cut below the 1913 times by 125 min. in the case of Glasgow, 105 min. Edinburgh, 80 min. Aberdeen, 76 min. Newcastle, 58 min. York, 51 min. Bradford, and 43 min. Leeds, by the L.N.E.R. route; also 90 min. to and from Glasgow by the L.M.S. route. Nothing remotely approaching such times has been achieved since the second world war. Note is also made in the table, by means of a dagger, of services which, no longer being competitive, have relapsed into much lower speeds than previously, chiefly by the insertion of additional stops, particularly over the former Midland and Great Central main lines.

It may be argued that as this table notes only the fastest times over each route, it does not give a true picture of the train services as a whole, but it is doubtful if average times would place the present services in any better light relatively to those of 1939 and 1913; in some cases, indeed, the figures might be relatively worse. In the Western Region, for example, in 1913 the best 16 expresses between Paddington and Birmingham (all those using the Bicester route) averaged 122 min. on their journeys; in 1939 the service had shrunk to 14 trains, and the average time had

increased to 124½ min.; in the summer of 1951 there were 18 trains via Bicester, and the average time had declined to 147 min., 25 min. more than in 1913. Similarly in the case of Bristol, the average time of the 14 fastest trains between Paddington and Bristol in 1913 was 143 min.; in 1939 the service had increased to 16 expresses and the average had come down to 129 min.; whereas in 1951 there was a reversion to 14 trains and the average time had increased to no less than 150 min.

The only service in the table which has shown substantial acceleration even since 1939 is that in operation over the Eastern Region between Liverpool Street and Norwich, since the advent of the new "Britannia" class 4-6-2 engines. In the summer of 1913, there were only four trains in each direction, eight in all, between London and Norwich that could be called express, and they averaged 164 min. on the journey. In 1939, there were ten trains that made the run in 162 min. or less, and they averaged 149 min. By 1951, the ten best trains

averaged no more than 135 min., and seven of them were making the run in 130 min., as compared with two in 1939 and none in 1913. It is striking indeed that today the average speed of the ten fastest trains over the 115 miles between Liverpool Street and Norwich (51.1 m.p.h.) is higher than that of the ten best between Euston and Birmingham, 113 miles (47.7 m.p.h.), or of the ten best between Paddington and Bristol, 118.3 miles (49.9 m.p.h.).

Of the most important industrial centres, Sheffield probably has suffered more severely than any other city of comparable importance in its services to and from London. The fastest L.M.R. train in 1951 was taking 38 min. longer than the best in 1939, and 34 min. longer than the quickest in 1913. The G.N.R. was providing a service in 2 hr. 58 min. in 1913, and in 3 hr. in 1939; but by 1951 nothing better than 3 hr. 38 min. was being offered. Similarly, by the G.C.R. route, 2 hr. 57 min. in 1913 had declined to 3 hr. 6 min. in 1939 and to 3 hr. 45 min. in 1951.

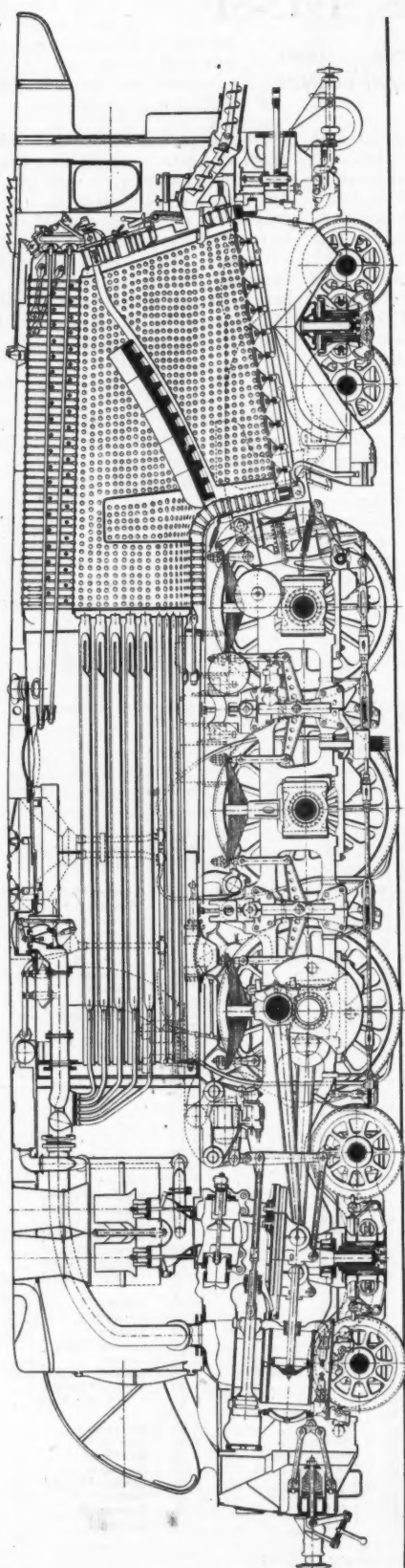
FASTEST TIMES BETWEEN LONDON AND PROVINCIAL TOWNS,  
SUMMER SERVICE, 1913, 1939 AND 1951

Between London and—	1913		1939		1951	
	Railway	Time	Railway	Time	Region	Time
Aberdeen ...	G.N., N.E. and N.B.	11 05	L.N.E. ...	9 45*	E., N.E. and Scots ...	11 06
" ...	L.N.W. and Cal. ...	11 15	L.M.S. ...	10 25*	L.M. and Scots ...	12 25†
" ...	M. and N.B. ...	12 12				
Birmingham ...	L.N.W. ...	2 00	L.M.S. ...	1 55	London Midland ...	2 10
" ...	G.W. ...	2 00	G.W. ...	2 00	Western ...	2 10
Bournemouth ...	L.S.W. ...	2 00	Southern ...	1 56	Southern ...	2 05
Bradford ...	G.N. ...	3 56	L.N.E. ...	3 05*	Eastern ...	3 55
" ...	Midland ...	4 13	L.M.S. ...	4 16	London Midland ...	5 12†
" ...	G.C. and L.Y. ...	4 42	L.N.E. and L.M.S. ...	4 40	E. and L.M. ...	5 20†
Brighton ...	L.B.S.C. ...	1 00	Southern ...	1 00	Southern ...	1 00
Bristol ...	G.W. ...	2 00	G.W. ...	1 45*	Western ...	2 10
Cardiff ...	G.W. ...	2 50	G.W. ...	2 37	Western ...	2 42
Edinburgh ...	G.N., N.E. and N.B.	7 45	L.N.E. ...	6 00*	E., N.E., and Scots ...	7 20
" ...	L.N.W. and Cal. ...	8 00	L.M.S. ...	7 05		
" ...	M. and N.B. ...	8 35	L.M.S. and L.N.E. ...	8 40	L.M. and Scots ...	10 32†
Exeter ...	G.W. ...	3 00	G.W. ...	2 50	Western ...	3 03
" ...	L.S.W. ...	3 14	Southern ...	3 06	Southern ...	3 20
Glasgow ...	L.N.W. and Cal. ...	8 00	L.M.S. ...	6 30*	L.M. and Scots ...	8 00
" ...	M. and G.S.W. ...	8 45	L.M.S. ...	8 38	L.M. and Scots ...	10 15†
" ...	G.N., N.E. and N.B. ...	9 20	L.N.E. ...	7 15*	E., N.E. and Scots ...	8 52†
Hull ...	G.N. and N.E. ...	3 52	L.N.E. ...	3 30	Eastern ...	3 56
Inverness ...	L.N.W. and Cal. ...	12 40	L.M.S. ...	13 05	L.M. and Scots ...	13 47
" ...	G.N., N.E. and N.B. ...	12 50	L.M.S. and L.N.E. ...	13 05	E., N.E. and Scots ...	13 42†
" ...	M. and N.B. ...	13 58				
Leeds ...	G.N. ...	3 25	L.N.E. ...	2 42*	Eastern ...	3 25
" ...	Midland ...	3 40	L.M.S. ...	3 48	London Midland ...	4 43†
Leicester ...	Midland ...	1 45	L.M.S. ...	1 39	London Midland ...	1 55
" ...	G.C. ...	1 49	L.N.E. ...	1 48	Eastern ...	2 07
Liverpool ...	L.N.W. ...	3 35	L.M.S. ...	3 15	London Midland ...	3 40
" ...	Midland ...	4 25	L.M.S. ...	4 39†	London Midland ...	5 38†
Manchester ...	L.N.W. ...	3 30	L.M.S. ...	3 15	London Midland ...	3 35
" ...	Midland ...	3 40	L.M.S. ...	3 38	London Midland ...	4 23†
" ...	G.N. and G.C. ...	4 03				
" ...	G.C. ...	4 10	L.N.E. ...	4 18	Eastern ...	5 15†
Newcastle ...	G.N. and N.E. ...	5 13	L.N.E. ...	3 57*	E. and N.E. ...	4 45
Norwich ...	G.E. ...	2 26	L.N.E. ...	2 10	Eastern ...	2 10
Nottingham ...	Midland ...	2 12	L.M.S. ...	2 03	London Midland ...	2 24
" ...	G.C. ...	2 23	L.N.E. ...	2 16	Eastern ...	2 42
" ...	G.N. ...	2 35	L.N.E. ...	2 44†	Eastern ...	3 15†
Perth ...	L.N.W. and Cal. ...	8 58	L.M.S. ...	8 20	L.M. and Scots ...	9 46
" ...	G.N., N.E. and N.B. ...	9 00	L.N.E. ...	8 25	E. N.E. and Scots ...	9 52
" ...	M. and N.B. ...	9 50				
Plymouth ...	G.W. ...	4 07	G.W. ...	4 00	Western ...	4 30
" ...	L.S.W. ...	4 55	Southern ...	4 43	Southern ...	5 34†
Portsmouth ...	L.S.W. ...	1 45	Southern ...	1 30	Southern ...	1 35
" ...	L.B.S.C. ...	2 02	Southern ...	1 52	Southern ...	2 05
Sheffield ...	Midland ...	3 00	L.M.S. ...	2 56	London Midland ...	3 34
" ...	G.N. ...	2 58	L.N.E. ...	3 00	Eastern ...	3 38
" ...	G.C. ...	2 57	L.N.E. ...	3 06	Eastern ...	3 45
York ...	G.N. ...	3 35	L.N.E. ...	2 37*	Eastern ...	3 30

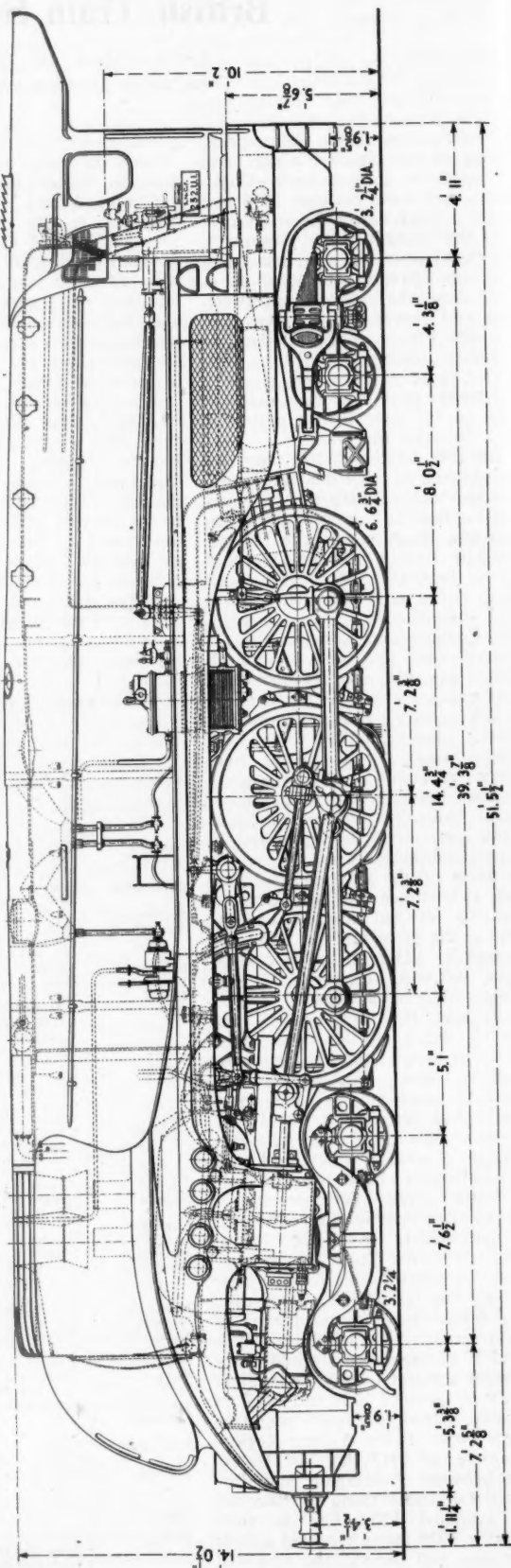
\* Streamline service for all or part of the journey

† No longer regarded as through services for competitive purposes

# A New 4-6-4 Type Locomotive, French National Railways



285 LB. PER SQ. IN.



Sectional view and elevation of locomotive

## A New 4-6-4 Type Locomotive, French National Railways

*No. 232.U.I incorporates novel features of design, and with a locomotive weight of no more than 131 tons, has shown itself capable of hauling 558 tons up 1 in 200 at a sustained speed of 80 m.p.h., and of exerting 4,000 drawbar horsepower*

**I**N 1940 the French National Railways placed in service seven 4-6-4 locomotives of a new design and stationed them at the La Chapelle depot, Paris, of the Northern Region, for use chiefly on the Lille and St. Quentin main lines. The first of these engines was a series of four 4-cyl. compounds, Nos. 232.S. 1-4, with rotary cam poppet-valve motion. After these came three 4-6-4s, Nos. 232.R.1-3, of the 3-cyl. simple type, also with rotary cam gear and poppet-valves. The fourth of the "R" series was planned to have turbine propulsion on the Swedish Ljungström

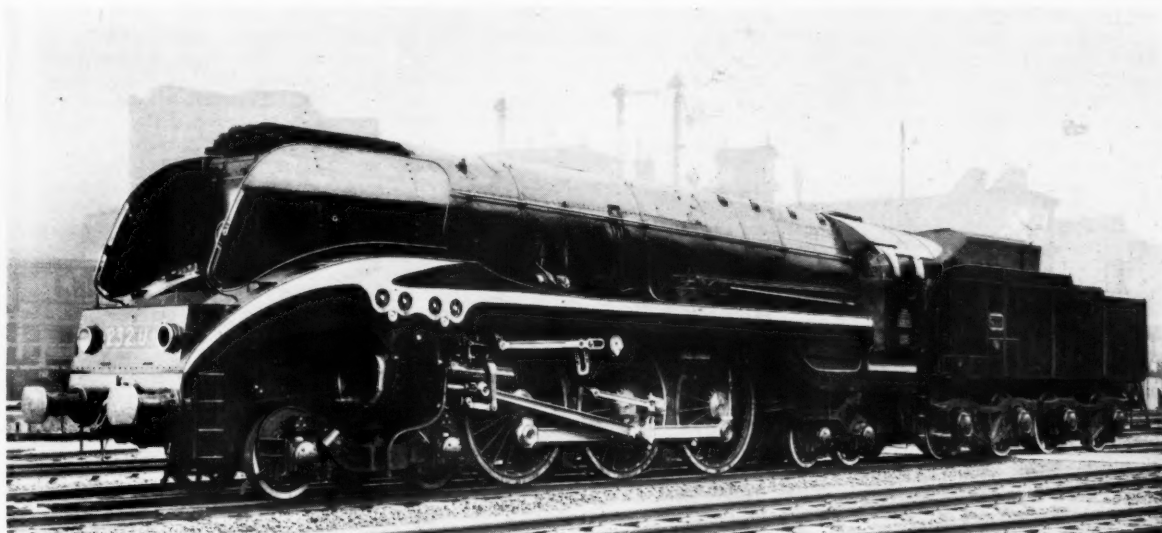
260 sq. ft. firebox heating surface and 1,830 sq. ft. heating surface provided by 137 tubes of 49 to 54 mm. dia. and 33 flues of 135 to 143 mm. dia., the total heating surface is 2,090 sq. ft.

As it was found in the earlier engines that the hot gases were leaving the smokebox at an uneconomically high temperature, and to absorb more of this heat in the superheater, Houlet elements, to a total of 33, have been substituted for the Schmidt elements used previously, giving a superheating surface of 942 sq. ft. The combined heating surfaces thus total 3,032 sq. ft.

base of 14 ft. 4½ in. and an engine wheel-base of 39 ft. 3¾ in., the locomotive is capable of passing round curves of 90 m. (295 ft. or 4½ ch. radius).

### Cylinders and Motion

With the aim of simplifying upkeep, poppet-valves and rotary cam gear, with their more delicate parts, have been abandoned in favour of piston-valves, as already mentioned, operated by Walschaerts motion of robust design. The two high-pressure cylinders, of 446 mm. (17½ in.) diameter, with their common steam chest, are a one-piece steel cast-



4-6-4 compound locomotive No. 232.U.1, S.N.C.F.

system, but because of the intervention of the war, this project was abandoned.

Eventually, after further study, this eighth 4-6-4 appeared from the works of Corpet Louvet et Cie., La Corneuve, as the first of a new "U" class, No. 232.U.1, with four cylinders, compound, but with piston-valves in place of poppet-valves, operated by Walschaerts motion of the normal type, and with roller bearings to the driving axles as well as to those of the bogie and rear bissel truck. Although weighing no more than 133 tonnes (131 tons), and with a firegrate area of 5.175 sq. m. (55.7 sq. ft.), No. 232.U.1 is designed to be capable of exerting a drawbar h.p. of 4,000.

The external appearance and general layout of the locomotive follow that of the previous 4-6-4s, with important modifications, additional to those already mentioned. Coupled wheels are of 2 m. (6 ft. 6½ in.) dia., and the adhesion weight is 69 tonnes (68 tons). With

The smokebox ends of the superheater elements are so arranged that the axes of the intake and outlet tubes are in the horizontal rather than in the vertical plane; this both facilitates the entry of cleaning rods to the boiler tubes, and also reduces the superheater tube surface that is exposed to erosion by ash drawn through the boiler tubes when the engine is working hard.

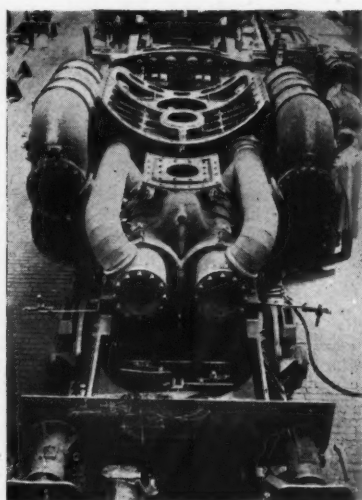
To minimise the possibility of water being carried from the boiler down to the cylinders, entry of steam into the main steam-pipe is through a longitudinal slot on the upper side of an extension of the pipe to the rear of the regulator. The diminutive dome is therefore provided to house the regulator, rather than for the collection of dry steam. The frames differ from those of the "S" and "R" engines mainly in the provision of SKF roller bearings to the driving axles, with Franklin horn wedges to allow the necessary play. With a coupled wheel-

ing. The steam chest is fed from above. Piston-valves are of the inside admission type.

The high-pressure cylinders are between the frames, and drive the leading coupled axle. The low-pressure cylinders, each 680 mm. (26½ in.) diameter, are outside the frames, and drive the middle pair of coupled wheels; these cylinders with the valve-chests are in two symmetrical castings, each in contact with the other on the axis of the main frame. Outside admission piston-valves are used for the l.p. cylinders. High- and low-pressure cylinders have a common stroke of 700 mm. (27½ in.). The expanded steam from the h.p. cylinders is taken to the l.p. by a steam pipe of 260 mm. (10¼ in.) dia.; on leaving the latter it is conducted to one central orifice, which branches into two parts, surmounted by a double chimney. Previous 4-6-4s had multiple-jet blast-pipes and single chimneys.

The pistons are of light design, forged





*High-pressure cylinders inside, and low-pressure cylinders outside the frames*

with their rods from the solid, and without tail-rods; they are fitted with Koppers segments. The piston-rods, uniformly of 90 mm. ( $3\frac{1}{2}$  in.) dia., move in bushes to ensure steam tightness. Cast steel liners are used in both h.p. and l.p. piston-valve chests, and form the only guide to the valves, which also are fitted with segments of the Koppers type. To obtain ports of adequate size, however, the castings for each low-pressure piston-valve liner are in three parts, with thin blades of rolled steel inserted between the cylindrical portions in the form of a steel piston-valve ring. The l.p. piston-valves are of the unusually large diameter of 420 mm. ( $16\frac{1}{2}$  in.), but by this type of construction adequate room has been left for steam passages of ample size.

#### Steam Distribution

Hitherto in French locomotive design it has been generally customary, with compound locomotives, to provide four sets of valve-gear, two for the h.p. and two for the l.p. cylinders, and to provide the driver with means of using different relations between h.p. and l.p. cut-offs at will. In No. 232.U.1 two sets of outside Walschaerts motion only are provided, and h.p. and l.p. piston-valves are worked by a single link on each side of the engine. The aim has been to obtain, as nearly as possible, the exertion of a roughly equal piston force on all four pistons, through the various phases of working. The proportion of the h.p. piston surfaces to those of the l.p. is 1:2.32, and the same ratio has been maintained in the cross-section of the various steam and exhaust ports of the locomotive.

By the use of unusually large clearance volumes—26 per cent. in all for the two ends of the l.p. and 17.5 per cent. for the two ends of the h.p. cylinders—large port openings are secured even with short cut-offs, but at the cost of a maximum cut-off on starting limited to 75 per cent. This is compensated for by automatic arrangements, later to be

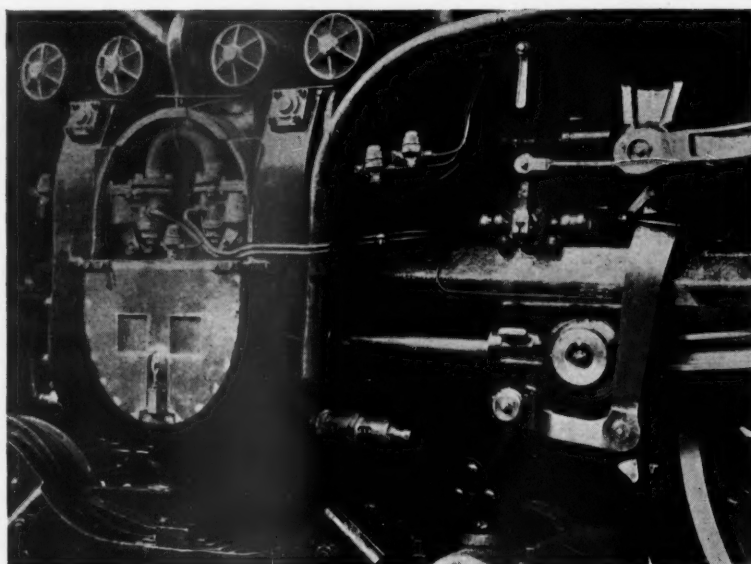
described, which assure admission of live steam on starting to the l.p. cylinders to the equivalent of 90 per cent. cut-off, and, in the worst starting conditions that can be foreseen, the maintenance in the steam chests of pressures comparable to those when running at speed, 18 hpz. (256 lb. per sq. in.) in the h.p. and 5 hpz. (71 lb. per sq. in.) in the l.p. cylinders.

Joints between all moving parts connected with the steam distribution are arranged with needle or roller bearings; these include SKF roller bearings at both ends of the radius link, SKF spherical bearings to the rod from the return crank which moves the radius rod, and needle bearings to the two massive return links which transfer the movement of the radius link to the h.p. mechanism.

The combination lever is of standard design, but in place of the customary die-block, the h.p. and l.p. piston-valve spindles are operated by a roller fitted with needle bearings. All the linkage of the steam distribution gear is arranged for grease lubrication, and experience will show at what frequent intervals lubrication is necessary.

The slide-bars, one-piece castings of a rigid design inspired by American practice, and the massive cross-heads, which are uniform for both h.p. and l.p. cylinders, are nevertheless light in weight, due to their being of cast steel of Infatigable quality. Indeed, the

of simple propulsion; the changes from simple to compound working are made by means of automatic controls. These controls are operated in part by compressed air and in part by steam, and comprise the following: (1) A single-seat valve or obturator, held down by compressed air and opened by steam, used to close the pipe giving direct access from the h.p. exhaust to the l.p. steam chest; (2) a single-seat valve which releases steam direct from the h.p. cylinders to the blast-pipe on starting; (3) an automatic regulator, consisting of a double-beat valve which, when lifted by the piston of a small compressed air cylinder, opens up direct communication from the h.p. to the l.p. steam-chest; (4) a novel piece of equipment on each l.p. cylinder which functions as a steam distributor on starting, and as an air distributor when the engine is running with regulator closed. Each of the latter is a double-beat valve, air-operated; on starting the valves are moved by means of a cam working in conjunction with the combination lever, and ensure the supply of live steam to the l.p. steam chest to the extent of 90 per cent. admission; when the regulator is closed, the valves open automatically by means of another control, and permit air to pass through the cylinders and up through the blast-pipe, so making a draught that prevents hot gases and ash from being drawn into the cylinders.



*Valve-gear and motion*

total weight of the reciprocating motion (pistons, cross-heads, and the proportion of the rods that requires reciprocating balance) is no more than 320 kg. (a little over 6 cwt.). The slidebars are pressure lubricated, and the small ends of all rods are grease lubricated.

The greatest interest of No. 232.U.1 is in the methods by which a compound locomotive is handled by the driver in precisely the same way as one

The driver's regulator handle and reversing control are of conventional type, but the reversing gear itself is of an entirely new pattern, working in an oil-bath and with its thrust screw supported in ball bearings. Above the reversing wheel is an almost vertical graduated indicator, easy for the driver to read. The reversing wheel works in conjunction with an air-operated servomotor, and allows great precision in

the adjustment of cut-off. Four combinations of working are possible—simple expansion with or without the complementary distribution of steam between h.p. and l.p. cylinders, and also compound with or without complementary distribution.

### Manipulation of Controls

In starting from rest, in normal conditions, the driver fixes his cut-off at the maximum of 75 per cent. for the h.p. cylinders, and opens his regulator. The l.p. obturators close to prevent compound working; the valves releasing steam direct from the h.p. exhaust to the blast-pipe open; the l.p. regulators open, so that high pressure steam passes direct from the h.p. to the l.p. steam-chest, and the l.p. regulators come into action, providing the complementary distribution of steam that ensures 90 per cent. admission in the l.p. cylinders. Immediately after starting, the driver begins to "notch up" in the usual way, but until the h.p. cut-off has been reduced to 55 per cent., the simple working continues unchanged, with l.p. admission still kept by the regulators at 90 per cent.

Directly the h.p. cut-off is reduced below 55 per cent., compound working begins; the l.p. obturators open, allowing expanded steam from the h.p. cylinders to pass direct to the l.p. steam-chest and at the same moment the valve releasing steam direct from the h.p. exhaust to the blast-pipe closes, and the l.p. regulators close also. The regulator is opened to full, and the cut-off percentages in both h.p. and l.p. cylinders from now on are those read by the driver on his graduated scale. These arrangements have been found adequate for starting heavy trains of 600 tonnes or so on gradients as steep as 1 in 125; on easily graded lines or with loads of less than 600 tonnes it may be possible to dispense with the complementary distribution.

It is recommended that during lengthy periods of running without steam, the regulator be not entirely closed, but that a small amount of steam be allowed to pass to protect cylinders and valves from excessive cooling. The l.p. distributors make it unnecessary in these conditions to advance the cut-off to a high figure, causing undue wear-and-tear of moving parts through high inertia. Instead, as soon as the pressure in the h.p. steam chests falls below 2 hpz. (28 lb. per sq. in.) the distributors open, admitting air at the steam pressure on both faces of the pistons, which passes out through the exhaust passages to the chimney.

The streamlined casings first applied to the 232 "S" and "R" classes, and subsequently modified by cutting away over the cylinders, bogies, and bissel trucks to provide better access for maintenance purposes, have been modified still further in No. 232.U.1, but in some respects, at the front end in particular, appearance has been even enhanced, and a commendably handsome outline has been produced. As in the previous 4-6-4s, for smoke deflection

purposes the graceful sheet steel screens on both sides of the smokebox are supplemented by a series of vanes fixed vertically on both sides of the chimney casing—an arrangement which has proved most effective in practice. At the rear end the screens are fitted almost to touch the boiler clothing.

The streamlining is now cut away sufficiently to make doors unnecessary to give access to the working parts, except for the doors admitting to the A.C.F.I. feed-water heater. This is provided with a more powerful feed-pump than that of the previous 4-6-4 designs, and it has a combination of mechanical and Bourdon type lubrication. Glass wool has been used to provide insulation for the l.p. cylinders, and their covers, and to fill all gaps between the external clothing and the barrels of the cylinders, the steam-chests, and the steam-pipes.

As compared with the "232.S" and "232.R" designs, the "232.U" has a longer and wider cab, with the roof carried well over the tender front for the protection of the crew. Special partitions are fitted for protection against draughts in the cab caused by the front corner of the water tank. The cab has a wedge front, with the look-out windows both larger and at a more oblique angle than before, to give better visibility and to permit of easier cleaning. Triplex glass is fitted. The engine is mechanically fired with a standard stoker of the H.T.I. type. Preparation of the locomotive is greatly facilitated, both by the complete accessibility of all moving parts and also by the almost universal use of grease lubrication. Before starting, the driver has only to inspect all the main lubricators, and also to oil the big ends of the connecting and coupling rods.

As an experiment, in No. 232.U.1 the valves controlling the supply of steam to the train for winter heating purposes are fitted with a device which makes it possible, when the engine is running with the regulator full open, to take the steam from the intermediate receiver between h.p. and l.p. cylinders, which normally is at a pressure of about 5 hpz. (71 lb. per sq. in.), instead of direct from the boiler. Experience will prove whether or not this results in any economy in steam consumption.

### Test Run from Paris to Lille

A test run of a notable character was made from Paris to Lille with an eleven-coach train of 567 tonnes (559 tons). At the time when this run was made, train No. 309 was allowed 121 min. for the 192.1 km. (119.4 miles) from Paris to Arras, which was cut to 102 min. 35 sec.; the 25.3 km. (15.7 miles) from Arras to Douai, allowed 19 min., were run in 15 min. start to stop; and the 33.5 km. (20.8 miles) from Douai to Lille, scheduled 26 min., were completed in 22 min. 50 sec. start to stop.

The first 5 km. out of Paris Nord are on a falling gradient of 1 in 250-167, and produced an acceleration to 66 m.p.h. At 8.5 km. from the terminus begins

the long climb to Surveilliers summit (km. 28), which with two short intermissions is at 1 in 200 throughout. This was begun at a steady 70 m.p.h., and after an increase to 77½ m.p.h. on the level km. through Goussainville, speed continued at 75 to 77½ m.p.h. unvaryingly to the summit. On the succeeding 1 in 200 descent speed was not allowed to exceed 77½ m.p.h., and there was the customary slowing for the curve through Creil, actually on this run to 63 m.p.h.

### Speed Maintained on Gradients

Up the adverse grades from Creil to Gannes, which at no point exceed 1 in 250 in steepness, the engine was worked more easily, though most of the climb was made at between 75 and 79 m.p.h. Steam was shut off before Gannes for a long and severe relaying check, which demanded a reduction to 30 km.p.h. (18 m.p.h.) between km. posts 88 and 91. From there onwards, save for a long 50 m.p.h. slowing for engineering works at the approaches to Longueau, the even rate of speed maintained by the locomotive, entirely irrespective of gradients, was most remarkable. It was a practically unbroken 77-78 m.p.h., over the falling grades from Gannes to Longueau, the level track beyond, and the climbs to Albert and Achiet, both finishing at 1 in 200.

The remainder of the journey calls for no special comment, save for the 50 m.p.h. engineering slack imposed for 6 km. from km. post 226 onwards, which accounts for the lower average speed between Douai and Lille. No net times are shown in the official data, but whereas the schedule times, adding up to 170 min. for the 155.9 miles from Paris to Lille, demanded an average speed of 55.0 m.p.h., the actual average speed, including stops totalling 4 min. 25 sec., was 64.9 m.p.h., and the net average (allowing for the stops and the engineering speed restrictions, was 70.6 m.p.h. On the journey the average coal consumption was 20.7 kg. (45.6 lb.) and the water consumption 128.1 kg. (282 lb.) per km., that is, 73.4 lb. of coal and 45.4 gal. of water to the mile.

On the return journey, the accelerations from each start were somewhat slower, but the sustained speeds were higher. The actual times were 21 min. 12 sec. from Lille to Douai start to stop (20.8 miles, schedule 26 min.); 16 min. 47 sec. from Douai to Arras (15.7 miles, schedule 21 min.); and 102 min. 10 sec. from Arras to Paris (119.4 miles, schedule 124 min.). This gave a running average of 63.6 m.p.h., including stops totalling 7 min. 40 sec., and a net average of 68.0 m.p.h.

The first 6 km. out of Lille rise, mainly at 1 in 200, and on this length there was an acceleration to 58 m.p.h.; on the rest of the short run to Douai, mostly falling or level, speed was at about 77 m.p.h., this figure being attained in 5 miles from the start. From Douai to Arras the gradients are almost continuously adverse, mainly at 1 in 250, but 60 m.p.h. was attained in 4.5 km. from the start (less than 3 miles),

77 m.p.h. in 10 km. (6½ miles), and a maximum of 79 m.p.h. was reached just before the summit at km. post 202. There were the same characteristics about the start from Arras, largely at 1 in 250 and 200 up to Achiet; on the initial 4 km. at 1 in 200 up speed rose to 60 m.p.h., increasing steadily to 79 on the ensuing 4 km. of undulating grades, and then was maintained at 79 up the final 1 in 200.

From there onwards both uphill, downhill, and on the level, the speed never altered between the limits of 75 and 80 m.p.h., save for a 50 m.p.h. slowing through Longueau, a permanent way restriction to 18 m.p.h. at km. post 108, between Longueau and Gannes, and a 63 m.p.h. speed restriction through Creil. The minimum speed at Gannes summit, up 1 in 250, was 76 m.p.h., but the most notable effort was after the Creil slowing, where the locomotive accelerated from 69½ to 74 m.p.h. up 1 in 200, and further to 79 m.p.h. on the short level stretch before Chantilly, then sustaining the latter speed steadily up 14 km. (8½ miles) of 1 in 200 to Survilliers summit. Notwithstanding this exceptional power

output, the coal consumption on the return journey was brought down to an average of 17·4 kg. per km. (61·8 lb. per mile), and the water consumption to 122·1 kg. per km. (43·25 gal. per mile).

#### Maximum Drawbar Horsepower

Experience has shown that the locomotive is capable of putting out a drawbar h.p. of from 2,000 to 2,500 for indefinite periods on rising gradients, increased over short distances to between 2,700 and 3,000 h.p., and at various points momentarily to 4,000 h.p. No explanation is given of the curious and somewhat violent fluctuations of power output in the vicinity of certain stops and speed reductions, both in slowing down and accelerating and it would be of interest to know if these were in any way due to the automatic transitions between simple and compound working.

It may be added that the locomotive may travel at speeds up to 140 km.p.h. (87 m.p.h.) over routes where this maximum is permissible but no advantage was taken of the descents on the Paris-Lille run to attain any higher

speeds than the 75 to 80 m.p.h. speeds uphill.

The foregoing particulars are based on an article contributed to the *Revue Générale des Chemins de Fer* by Monsieur M. de Caso, Ingenieur Principal au Service Technique du Matériel et de la Traction, French National Railways, who has been responsible for this notable locomotive design and who collaborated in the preparation of the present article.

Principal dimensions of the locomotive appear below:—

Cylinders, h.p. (2) dia. ...	446 mm.	17½ in.
" " i.p. (2) " ...	680 mm.	26½ in.
" " (4) stroke ...	700 mm.	27½ in.
Coupled wheels, dia. ...	2·00 m.	6 ft. 6½ in.
Bogie and bissel wheels, dia. ...	0·97 m.	3 ft. 2¼ in.
Heating surface, firebox ...	25 sq. m.	260 sq. ft.
" " tubes ...	170 sq. m.	1,830 sq. ft.
" " total ...	195 sq. m.	2,090 sq. ft.
Superheater surface (33 elements) ...	87·4 sq. m.	942 sq. ft.
Firegrate area ...	5·175 sq. m.	55·7 sq. ft.
Working pressure ...	20 h.p.z.	285 lb. per sq. in.
Adhesion weight ...	69·0 tonnes	68 tons
Engine weight in working order ...	133·0 tonnes	131 tons
Coupled wheelbase ...	4·39 m.	14 ft. 4½ in.
Engine wheelbase ...	11·99 m.	39 ft. 3½ in.
Length of locomotive overall ...	15·99 m.	51 ft. 5½ in.
Length of locomotive and tender overall ...	25·64 m.	84 ft. 1½ in.
Tender, water capacity ...	35·17 cu. m.	7,700 gal.
Tender, coal capacity ...	9·8 tonnes	9·5 tons
Tender weight, fully loaded ...	81·51 tonnes	80 tons

## Operating Developments in the Scottish Region

(See editorial article on page 283)



The 10.55 a.m. class "C" Joppa to Whitemoor fully-fitted freight train near St. Germain. This is one of the services instituted since the war between large centres in Scotland and the principal receiving points or yards in England



## New Signalbox at Stafford, L.M.R.

*Mechanical frame controlling first stage of multiple-aspect colour-light scheme for the Stafford area*

A NEW No. 5 signalbox at Stafford on the London Midland Region Euston-Crewe main line is to be brought into use shortly. It will control the up and down fast and slow lines at the north end of the station, and the junctions between these lines and the lines to Wellington and Stafford Common. Stafford is an important junction, as at the southern end of the station the direct rail connection between the Birmingham area and the North joins the main line.

The new No. 5 box has been erected opposite the existing signalbox. Construction of the box and combined relay room is in accordance with agreed modern standards, with brick walls faced with hand-made bricks, reinforced concrete roof and wide-vision metal windows. The building is centrally heated by a thermostatically-controlled gas-fired boiler and is equipped with electric lighting.

The lever frame of 123 levers in the existing signalbox has become uneconomical to maintain, and could not have been altered to operate the remodelled permanent way layout, which has been designed for more convenient working of traffic and is being laid in flat-bottom rail. The operating floor of the existing signalbox is 23 ft. above rail level, largely to give the signalman a view of the line on the north side of the signalbox over an adjoining over-bridge, but this means that he cannot readily see trains passing the signalbox during bad visibility. The operating floor of the new signalbox is only 12 ft. 6 in. above ground level, but the provision of track circuits and the latest electrical controls will more than compensate for any loss of visibility during clear weather.

### Colour-Light Signals

In view of the importance of Stafford, colour-light running signals have been installed on the main lines in the area to be controlled by the new No. 5 signalbox, and these form the first part of a complete multiple-aspect colour-light signalling system which will improve traffic working through Stafford generally. The installation will include continuous track circuiting, and greatly improve the working of trains during bad visibility.

The 150-lever mechanical frame has been installed in the new signalbox already. It is of the normal L.M.R. pattern with catch handle locking, and is arranged for mounting directly on the operating floor, with the counter-balance arrangements and electric lever locks mounted below in the under-portion of the signalbox. All points and the ground signals for shunting movements will be mechanically operated.

Single-arm ground signals have been used throughout, with stencil letter indicators where it is necessary to show the route which has been set up. Two such signals, one in the up fast and one in the up slow line opposite the new signalbox, will be passed in the facing direction by all trains, and will precede the relevant colour-light running signals, which have been positioned further away in order to maintain a reasonable signal-to-signal distance.

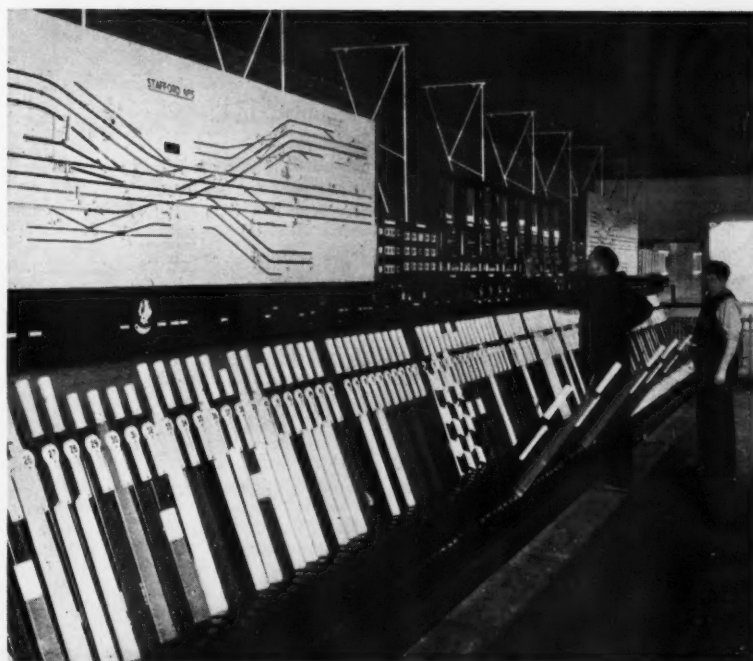
The colour-light running signals are provided with junction indicators and position-light subsidiary signals as

white plastic with black lines and lettering, are being installed. The lever name and pull plates will be similar, and the lever handles will be "clad" with white plastic covers.

### Block Telegraph Indications

The diagrams will be carried on the block shelf, which will have the signal repeaters mounted on the face, immediately over the lever concerned with each.

Other train signalling instruments will be mounted on the block shelf, but the usual block telegraph needles will



*The 150-lever mechanical frame installed in the new No. 5 signalbox at Stafford, London Midland Region*

required, except that on the down slow line and the down platform line, which connects with the down fast line, theatre-type route indicators have been installed, as the speed of trains is limited.

### New Type Junction Indicators

The junction indicators will also display the route for the subsidiary signal—the first time this has been arranged in a London Midland scheme. Previously stencil letter indicators were provided specially for this purpose in addition to the junction indicators. Owing to the limited number of routes concerned, no selection has been employed for the running signals and separate levers have been used for each route.

Duplicate illuminated diagrams, of

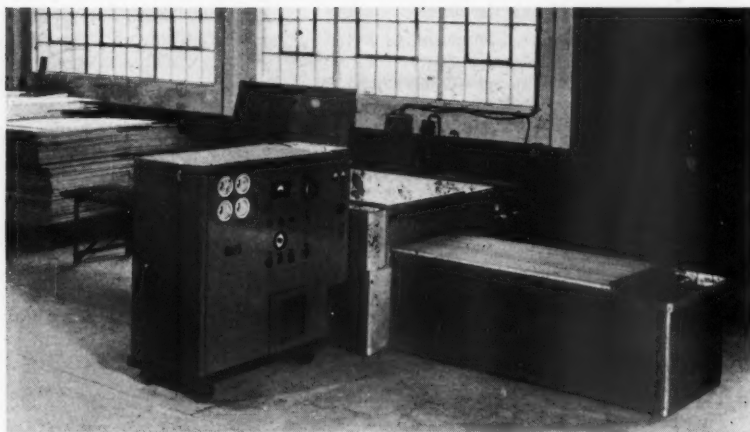
be replaced by red and green lamps for "Train on Line" and "Line Clear" respectively.

The lever frame is mounted in the new signalbox on the side away from the running lines, so that the signalmen will have a clear view of the latter through the wide-vision windows; the concrete roof is extended to provide a canopy which protects the windows from glare and driving rain.

To warn passengers that they are about to arrive at Stafford, a large vitreous enamel station name sign, measuring 12 ft. 6 in. × 2 ft. 3 in., has been fixed to the face of the signalbox, and will be illuminated at night. In addition, a smaller vitreous enamel name plate will be fixed at each end of the box so that it may be identified easily by train crews.

## Edge Glueing for Blockboard Production

*Radio frequency glue-setting machine  
designed for mass production methods*



*Radio frequency generator standing at right angles to the press*

**I**NCREASING use is being made of blockboard for decorative and also constructional purposes, partitions, floors and so on, for railway rolling stock and road passenger transport vehicles. A machine which is claimed to be the first of its kind produced in Great Britain, through the use of which, mass production methods can be applied to the production of blockboard and similar materials, has been developed jointly by the General Electric Co. Ltd. and Fielding & Platt Limited.

Known as the G.E.C.-Fielding radio frequency edge glueing machine, the advantages claimed for the system of heating are speed and economy, since it enables considerable thicknesses of material to be heated uniformly without the necessity for long holding periods whilst the heat is slowly conducted inwards from the surface. Thus heating times are reduced, and in addition, the relative electrical properties of timber and glue are such that the heat is concentrated in the glue line (where it is wanted) and is not wasted in heating up the large mass of the wood.

### **Machine Design**

The machine has been designed for the production of boards from 36 in. to 80 in. in length, up to 40 in. in width and from  $\frac{1}{8}$  in. to 2 in. thick from scantlings or offcuts. The strips must be of uniform thickness but need not be accurately cut to length. The strips may be of any convenient width and single boards can be made up from strips of various widths, providing that the thicknesses are uniform. Production rates depend on the size of the boards; they also vary with the moisture content of the wood and the type of glue being used.

Tests have shown that the last factor has a considerable bearing on production, since some glues set more rapidly

than others of the same general type. It is claimed that boards 80 in. by 40 in. by 1 in. thick have been made from strips 2 in. wide in five minutes. The glued boards coming from the machine are fully set and ready for the next manufacturing process, and as they remain comparatively cool, can be handled straight from the press; no jigs or clamps are needed since the storing of the boards while the glue sets is not necessary.

The machine comprises a pneumatically operated press (with a feed table and automatic loader) to which radio frequency power is supplied, through a matching unit, from a G.E.C. 5-kW. radio frequency generator. A simple glue spreader is also included in the installation. An electrically driven air-compressor and reservoir are built into the plant, to supply air for automatic

operation of the press. The feed table, which has a stainless-steel top, is fitted with stops along both edges so that it serves as a lay-up table for the strips coming from the glue spreader.

The load matching unit ensures the most efficient use of the generator, and enables the machine to be adjusted for the most rapid heating rates, irrespective of the dimensions of the boards being produced. Operation of the machine has been reduced to the simplest possible form. Once the prepared strips have been assembled on the feed table, the operator presses a button, which sets the automatic loader arm in motion and feeds the board into the press.

The remaining part of the cycle is then carried through in its correct sequence and the completed board is automatically ejected when the next assembly enters the press.

The process is controlled by not more than two operators, the first feeding strips into the glue spreader and also stacking completed panels ejected from the machine. The second operator takes glued strips from the spreader and assembles them on the feed table. Once an assembly has been fed into the press, the loader arm returns to its original position and another board can be assembled whilst the previous one is undergoing heat treatment.

UNIONMELT WELDING SALES AND SERVICE.—The Quasi-Arc Co. Ltd., Bilston, Staffordshire, announces that as from April 1, 1952, sales and service of Unionmelt automatic welding plant, powder and wire will be transferred to its associated company, Fusarc Limited, Team Valley, Gateshead-on-Tyne, 11. Fusarc Limited will continue to supply full mechanised installations.



*A finished board being ejected automatically from the press*

## RAILWAY NEWS SECTION

## PERSONAL

Mr. José Rivera R. has been appointed Managing Director of Ferrocarril de Pacifico, S.A. de C.V., Mexico (formerly Southern Pacific Railroad of Mexico).

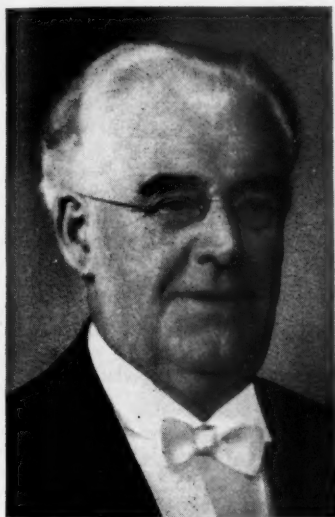
The Railway Executive has announced the appointment of Mr. E. R. Dewdney, Assistant to Superintendent Marine Engineer, Southampton, as Executive Officer (Marine), Railway Executive headquarters, London.

Mr. A. J. Broughton, Irish Traffic Manager, British Railways, London Midland and Western Regions, who is retiring on March 25, began his railway career with

Mr. R. E. Mattson, General Superintendent of Transportation, Northern Pacific Railway, U.S.A., the first of a team of American railway experts who are to advise the board of Coras Iompair Eireann on technical matters, has arrived in Dublin. Mr. Mattson expects to be in Ireland for several months.

Mr. G. B. Gray, District Passenger Superintendent, Newcastle, North Eastern Region, who has been appointed General Agent for Eire, British Railways (London Midland and Western Regions), as from March 26, was educated at Leeds Grammar School and St. Catherine's College, Cambridge, and joined the L.N.E.R. in 1932. After training he was appointed Assistant

nical College, and entered the G.W.R. Traffic Department in 1912. He joined the Army soon after the outbreak of war in 1914, and was commissioned in the South Wales Borderers in 1915; after being wounded on the Somme a year later he returned to France as an R.T.O. in 1917. In December, 1918, he was posted to the General Headquarters Railway Traffic Office, Cologne, and a year later to Danzig as R.T.O. in Charge. After a year there and on the Inter-Allied Baltic Railway Commission in Poland, he returned to the United Kingdom at the end of 1920 and was demobilised. In 1921 he joined the Eastern Railway Construction of the Nigerian Railway, and in 1927 went over to Open Lines as Assistant Traffic Officer.



Mr. A. J. Broughton

Irish Traffic Manager, British Railways, London Midland and Western Regions, who is retiring



Mr. G. B. Gray

Appointed General Agent for Eire, British Railways (London Midland and Western Regions)



Mr. A. J. F. Bunning

Appointed General Manager of the Transport & Harbours Department, British Guiana

the Midland Railway in 1901, and also served on the Great Central & Midland Joint Committee. From 1911 to 1914 he was Chief Clerk at a large station in the Northern area, and was then transferred to headquarters at Derby as outdoor representative on the personal staff of the Chief Goods Manager. In 1916 he was appointed headquarters inspector. When the L.M.S.R. was formed in 1923, Mr. Broughton joined the Chief General Superintendent's Department, but returned later to the Chief Goods Manager's Department for special work in connection with road transport, in the Northern Division. From 1928 to 1931 he was in charge of important sections of the Road Transport Department at Euston. In 1931 he became Assistant Irish Traffic Manager, and he was appointed Irish Traffic Manager, L.M.S.R., in 1940. The same year he was co-opted a Member of the Dublin Port & Docks Board. He is a Member of the Institute of Transport and has been a Fellow of the Association of Certified and Corporate Accountants for over 30 years. Mr. Broughton is a Member of Council of the Irish Association of Chambers of Commerce, and of the Dublin Chamber of Commerce, of which he was President during 1947-48. He was appointed Irish Traffic Manager, British Railways, London Midland and Western Regions, in 1951.

to District Manager, Peterborough, in 1935, and a year later moved to the Chief General Manager's Office, Kings Cross, as Assistant to the Industrial Agent. Between 1937-48 he occupied positions on the L.N.E.R. as Assistant to District Manager, Nottingham (1937-39); Assistant to District Goods & Docks Manager, West Hartlepool (1939-41); Acting Assistant District Goods Manager, Leeds (1941-44); Assistant District Goods & Passenger Manager, Lincoln (1944-46); and Assistant District Goods Manager, Manchester (1946-48). In 1948 Mr. Gray was appointed Assistant District Goods Manager, Leeds, North Eastern Region, and in 1949 Acting District Passenger Manager, Leeds. In April of the following year Mr. Gray became Assistant District Goods Superintendent, Leeds, and four months later was appointed District Passenger Superintendent, Newcastle.

Mr. A. J. F. Bunning, C.M.G., whose position as Adviser on Inland Transport to the Secretary of State for the Colonies is being abolished on the grounds of economy as from March 31, will leave the United Kingdom for British Guiana in the latter half of April to take up the post of General Manager of the Transport & Harbours Department. He was born in September, 1895, was educated at Newport (Monmouthshire) High School and Tech-

He was promoted District Traffic Superintendent in 1936. Three years later he transferred to the Gold Coast Government Railway as Traffic Manager. In May, 1942, Mr. Bunning returned to the Nigerian Railway with the appointment of Chief Traffic Superintendent; he did not take up that post, however, as on arrival he was promoted Deputy General Manager. He acted as General Manager in April and May, 1943, and again from July, 1943, until his appointment as General Manager in January, 1944. On January 1, 1948, he became Adviser on Inland Transport to the Secretary of State for the Colonies and since then has travelled extensively in the interest of colonial transport. In 1948, he visited Kenya, Uganda, Tanganyika, Northern and Southern Rhodesia, and Nyasaland, and went on to Johannesburg for discussion with the High Commissioner for the Protectorates (Bechuanaland, Swaziland, Basutoland), and to establish relations with principal officers of the South African Railways in Johannesburg. He visited Mauritius at the request of the Mauritius Government in 1949 to report on transport and to make recommendations for the future of the Mauritius Railway. From there he proceeded to Kenya and thence to Singapore via India and Ceylon. Using Singapore as a base, he





**Captain W. L. Sinclair**

Chief Marine Superintendent, London Midland Region (responsible for Western Region shipping services), who has retired



**Captain J. D. Reed**

Appointed Manager (Irish Shipping Services), Euston, British Railways



**Mr. F. L. Castle**

General Manager, Siemens and General Electric Railway Signal Co. Ltd., who has been appointed a Director

travelled extensively to Malaya, Penang, North Borneo and Sarawak. In 1950, he visited Sierra Leone on the invitation of its Government to investigate and report on the economics and possible future development of the Sierra Leone Railway, and later in that year attended the Johannesburg conference on transport matters in Africa south of the Sahara. From Johannesburg he went to French West Africa to attend a conference at Dschang in the French Cameroons held to consider transport problems in relation to the development of the French territory of Chad, and returned via Lagos and the Nigerian Railway to Kano, thence by air to London. Mr. Bunning is at present in the Gambia, where he is making a four-week visit at the request of that Government, to discuss the organisation of marine vessels and the future organisation of river and road transport.

Mr. Robert D. McElheron has been appointed Assistant Public Relations Officer, Coras Iompair Eireann.

Captain W. L. Sinclair, who, as recorded in our January 18 issue, has retired as Chief Marine Superintendent, London Midland Region (responsible for Western Region Shipping Services), British Railways, served his apprenticeship with Thomas Law & Company, Glasgow, in its China Line of sailing ships. He then joined the Anchor Line as Junior Officer and served from Junior Officer to Master, Assistant Marine Superintendent, and Marine Superintendent. He joined the L.M.S.R. as Marine Superintendent & Harbour Master, Holyhead, in January, 1935. In July, 1937, he was transferred to headquarters at Euston as Assistant Marine Manager, which post he vacated in 1943 to become Chief Marine Superintendent, L.M.S.R. He assumed responsibility for Western Region shipping services in January, 1948. Captain Sinclair served in the 1914-18 war as Lieutenant, R.N.R., in H.M. Submarines. He is a member of the Court of the Honourable Company of Master Mariners, an Associate of the Institution of Naval Engineers, and an Associate of the Institute of Engineers & Shipbuilders in Scotland.

Captain J. D. Reed, Assoc.I.N.A. and Extra Master, Executive Officer (Marine), Railway Executive headquarters, who has been appointed Manager (Irish Shipping Services), Euston, British Railways, began his sea career as an apprentice in the *Windsor Hall* in 1914, serving eventually in a ship attached to the South Atlantic fleet and later on board a military transport attached to the Balkan forces. He passed all his marine examinations by the age of 24 and from 1924-1930 was Master of Merchant Service ships operating on the Continent/Brazilian/Argentine trade. He relinquished command of ocean-going ships to sit for the Board of Trade Nautical Surveyors examination, passing fifth in the United Kingdom, and later joined the former Great Western Railway cross-channel mail vessels before being appointed ashore at the G.W.R. South Wales ports shortly afterwards. In 1935 he was appointed in charge of Fishguard Harbour and the cross-channel services operating from that port. During the 1939-45 war, all the G.W.R. cross-channel vessels were based on Fishguard under his charge, some serving as hospital ships and others as troopships. He also served as Chairman of the Port Emergency Committee in the Fishguard area. Captain Reed was appointed Marine Superintendent at the former G.W.R. Marine Headquarters in 1945. Shortly after nationalisation, he became Assistant Chief Officer (Marine) at the Railway Executive.

Mr. J. G. Dobson has been appointed Manager of the Wolverhampton office of Thos. Cook & Son Ltd., in succession to Mr. A. R. Franklin. Following the death of Mr. R. Hill, Mr. Franklin has been appointed Manager of the Newcastle-on-Tyne branch.

#### WESTERN REGION APPOINTMENTS

The Western Region of British Railways has announced the following appointments:—

Mr. P. Protapadakis to be Development Assistant to the Civil Engineer.

Mr. G. D. S. Alley, Permanent Way Assistant to the Civil Engineer, London Midland Region, as Assistant Civil Engineer (Permanent Way), Western Region.

Mr. F. L. Castle, A.M.I.E.E., M.I.R.S.E., M.Inst.T., General Manager of the Siemens and General Electric Railway Signal Co. Ltd. who, as recorded in our February 15 issue, has been appointed a Director of that company, entered the service of the Midland Railway in 1909 at Derby as Technical Assistant in the Telegraph Department, and was appointed Relief Inspector in 1914. In that year he joined the Royal Engineers; and he served in Gallipoli, Egypt, France and Belgium, and on the western front commanded No. 2 Railway Telegraph Company, R.E. On demobilisation in 1919 he entered the service of the General Electric Co. Ltd., to create a Railway Signal Department, and was appointed Manager in 1922. On the formation of the Siemens and General Electric Railway Signal Co. Ltd. in 1926, he was appointed General Manager of that company. Mr. Castle has made many business journeys overseas, visiting railways in practically every country of the British Empire, most of the countries in South America and Europe, and the U.S.A.; he was largely instrumental in securing the large dollar contract for signalling the Toronto Subway, Canada. He is Chairman of the Railway Brakes & Signals Industrial & Export Group, and a Director of the Railway Signal Co. Ltd. He is a Member of Council of the Institute of Transport, and is also a Fellow of the Permanent Way Institution. Mr. Castle joined the Institution of Railway Signal Engineers as a Student on its formation in 1913; he has been a Member of Council for 20 years and was President for 1947.

The following notification appeared recently in *The London Gazette* under the heading of Regular Army—Commands & Staff:—

Major-General H. Bainbridge, C.B., C.B.E., late R.E., is appointed Deputy Quartermaster-General, War Office, February 21.

Mr. C. E. Cadwallader, who, as recorded in our March 7 issue, has been appointed a Principal Executive Assistant, London Transport Executive, and will act as Deputy to the Estate Agent & Rating Surveyor is 54. He joined the estate office

of the former Metropolitan Railway in 1913 and during his service with London Transport and its predecessors has had extensive experience in all branches of the surveyor's profession, including the management of surplus properties, rating, taxation, purchases and sales, and kindred matters. He is a Fellow of the Royal Institution of Chartered Surveyors.

The Vacuum Oil Co. Ltd. has appointed Mr. D. M. Glendinning as Manager of its new refinery at Coryton, Essex.

Mr. J. Hollingworth, Assistant District Goods Superintendent, Manchester, London Midland Region, British Railways, has been appointed District Goods Superintendent, Bolton.

We regret to record the death on March 10, at the age of 54, of Mr. G. H. Batty, Export Manager in the London office of Firth-Vickers Stainless Steels Limited.

The late Sir Francis Towle, who was Managing Director, Gordon Hotels Limited, and formerly a Joint Manager of the Midland Railway Hotels Department, left £39,221.

Mr. Ernest H. Colby has been appointed Manager, Plant Operations, of Shippers' Car Line Corporation, subsidiary of the American Car & Foundry Company, with headquarters in New York.

We regret to record the death on March 7 of Mr. A. W. Goldsack, Chief Electrical Engineer, Messrs. Rendel, Palmer & Tritton, Consulting Engineers. He had been with that firm for nearly 50 years.

The second supplement to *The London Gazette* dated February 12, intimated the appointment of Colonel Raymond Thompson, O.B.E., A.M.I.Loco.E., as an aide-de-camp (Supplementary Reserve) to his late Majesty King George VI with effect from January 22, 1952. Colonel Thompson is District Motive Power Superintendent, Edinburgh, British Railways, Scottish Region, a position he has held since January 1, 1949.

**NORTH EASTERN REGION APPOINTMENTS**  
The North Eastern Region of British Railways announces the following appointments:—

Mr. Harold Ormiston, Assistant District Engineer, York, to be Assistant Engineer. (Permanent Way), Civil Engineer's Department.

Mr. A. F. Wigram, Assistant Signal & Telecommunications Engineer, Reading, Western Region, to be Signal & Telecommunications Engineer, York, North Eastern Region.

#### CENTRAL TRANSPORT CONSULTATIVE COMMITTEE

The Minister of Transport has appointed the undermentioned persons to be members of the Central Transport Consultative Committee for Great Britain:—

Representing industry: Mr. A. E. Lines.  
Representing labour: Sir William Lawther, in place of Mr. W. B. Beard, resigned.

Mr. R. G. M. Street has been appointed Chairman of the Transport Users Consultative Committee for Wales, following the resignation of Colonel H. Edmund Davies, Q.C. The appointment also carries with it membership of the Central Transport Consultative Committee for Great Britain.

## Responsibility for Fare Increases

The increases in London Transport rail and bus fares and British Railways fares in the London Area operative from March 2, and the alterations in British Railways fares in the provinces, authorised by the Transport Tribunal to take effect from May 1, have been the subject of debate in the House of Commons and of much public comment.

To clarify the position the following statement was issued from the Cabinet office at 10, Downing Street on March 7:—

"Widespread misapprehension exists about the recent serious rises in bus fares and railway fares in the London area. These decisions were not taken by Her Majesty's Government or by the Minister of Transport, but by the British Transport Commission under the authority of a scheme confirmed by the Transport Tribunal, an independent judicial body. The procedure is that provided by the Transport Act, 1947, passed under the late Government, and does not require any consent by the Minister of Transport.

"The Minister is, therefore, not in any way responsible either for the contents of the scheme or for the action taken under it.

"The scheme laid down maxima within which the Commission have entire discretion to fix actual fares. They were under no obligation to consult the Minister and did not in fact do so. The Commission's exercise of that discretion covers alteration of fare stages, which is a matter that can properly be referred to the Central Transport Consultative Committee set up under Section 6 of the Transport Act, and the Minister proposes to make a reference to the Committee."

## SS. "Normannia" Luncheon

Following the first cross-Channel trip of ss. *Normannia* from Southampton on the evening of March 3, an opportunity was taken at Le Havre the following day of inviting representatives of the French National Railways and the Port Authorities to lunch in the restaurant of the vessel.



Group of British and French railway officers, including Mr. John Elliot, Chairman, Railway Executive, in SS. "Normannia," on the occasion of the luncheon held on board on March 4

The guests were welcomed on board the vessel, which was described and illustrated in our March 7 issue, by the Master, Captain F. E. Trout. Among those present were:—

**Railway Executive:** Messrs. John Elliot, Chairman; V. M. Barrington-Ward and David Blee, Members; J. L. Harrington, Chief Officer (Marine); A. J. Pearson, Chief Officer (Administration).

**Southern Region:** Messrs. C. P. Hopkins, Chief Regional Officer; S. W. Smart, Superintendent of Operation; R. P. Biddle, Docks & Marine Manager; J. P. Campbell, Superintendent Marine Engineer.

**French National Railways:** Messrs. Goursat, Chief Officer Marine and Chief Regional Officer, Nord Region; Hebert, Chief Regional Officer, Region Ouest; Marois, Chief Commercial Manager, Service Central; Goutard, Operating Manager, Region Ouest; Gilmaire, Assistant Operating Manager, Service Central.

Messrs. Goursat, French National Railways and Villard, Port of Havre Authority, replied to the greetings of Mr. John Elliot. In the accompanying illustration are shown:—

**Left to right:** Messrs. David Blee, John Elliot, Captain F. E. Trout, Messrs. Goursat, J. L. Harrington, Marois, R. P. Biddle. **Seated:** Mr. V. M. Barrington-Ward.

**CIVIL ENGINEERING PROBLEMS IN THE COLONIES.**—The Institution of Civil Engineers will hold the third conference of the series on "Civil Engineering Problems in the Colonies" at the Institution in London from June 16-20. These conferences are held every second year and are intended specially to cater for the needs of members of the Colonial Engineering Service and of others engaged in civil engineering work in the Colonies. Non-members may attend by making application to the Institution. This year the technical papers will include "Notes about Permanent Way Maintenance, Re-Laying and Bridge Strengthening on the Nigerian Railway," by Mr. E. J. B. Gahan, Chief Engineer, Nigerian Railway; and "Rehabilitation of the North Borneo Railway," by Mr. H. Galford, General Manager, North Borneo Government Railways.

## Institution of Locomotive Engineers' Annual Luncheon

*Mr. Julian Tritton on the part played by British engineers and manufacturers in the development of Indian railways*

The annual luncheon of the Institution of Locomotive Engineers was held at the Dorchester Hotel, Park Lane, on Friday, March 7. Mr. Julian S. Tritton, President of the Institution and a Partner in Messrs. Rendel, Palmer & Tritton, Consulting Engineers, was in the Chair.

Mr. V. K. Krishna Menon, High Commissioner for India, who proposed the toast of "The Institution," expressed appreciation of the honour both he and his country had received through the invitation to attend the luncheon. On the Indian railways by far the greater number of the locomotives at work had been designed and built in Great Britain. The first locomotive for India had been built in this country in 1852, and in the hundred years that had followed an average of 100 locomotives a year had been delivered. Referring to the Locomotive Works at Chittaranjan, Mr. Menon said that the locomotives under construction there would play a vital part in the life of India, as in that country locomotives provided the principal means of distributing food to the people. It was probable, though, that long-distance passenger traffic in India would be taken over by the aeroplane. The railways in India were dependent on the skill and generosity of the British manufacturers and the Ministry of Supply. At the present time India had 397 locomotives on order from the United Kingdom.

### Commonwealth Occasion

Mr. Julian S. Tritton, responding to the toast, thanked Mr. Menon on behalf of the Institution for the good wishes he had just expressed. It would be seen from the list of eminent guests, whom they were delighted to have with them, that they had made this luncheon a Commonwealth occasion. Last year under the able Presidency of Mr. R. A. Riddles, they had gone "all British." This year they thought it fitting that their President, as an overseas man, should emphasise the importance which the Institution attached to the work of its members in the Commonwealth and overseas. He felt that this was suitable on the occasion of his Presidency, because he had been privileged for the greater part of his life to serve the Indian Railways.

He was very glad that he had been privileged to live during this half century and that he had witnessed almost the complete cycle of development of railways in India. This vast system, built under British private enterprise and operated for the major part of its existence by British engineers, had by them been brought up to a standard of operation which compared favourably with any in the world. For many years it had provided the cheapest third class travel in the world. It was the pioneer of standardisation of locomotives and rolling stock on a large scale. Later it had been fused into a vast organisation under state control and now the full cycle had been completed by the Government coming into a goodly heritage in which it was taking full advantage under national management. The Institution was proud of the part it had played in this great development.

One of the highlights of his career had been the occasion on which, after luncheon at Government House, in New Delhi, he had found himself seated between Lord

Mountbatten and Pandit Nehru, discussing the future of Indian railways, at a time when it had been decided that they should run under their own steam. On this occasion Pandit Nehru had said that they would continue to look to the British railway engineer for technical assistance and hoped it would be forthcoming under the new conditions; he had added that they knew where to get the best value for their money. Mr. Tritton said he believed it was true of most of the Commonwealth nations that they wanted to buy British. They wanted British services. He had ample evidence during his travels that as a long-term policy they wanted their new railways and industries to be started up for them by the British, so that in due time they could take them over on a sound basis.

In the Institution they had given freely in the past of their technical knowledge. When they had been responsible for railway organisation they had set up training schools in the big railway centres overseas for the benefit of the local population. The locomotive side was generally the most difficult to develop in new countries; it was a highly-specialised profession, whereas the civil engineering and commercial sides had an indigenous foundation on which to build. At home our railway and locomotive builders' shops were carrying their full complement of trainees from all parts of the Commonwealth. They believed that our heritage in the Commonwealth of Nations fitted us better than any other nation to undertake these training and development services. In return they asked that these services should be given in fair and equitable conditions and not under conditions which annulled their value through frustration or lack of authority.

The countries of the Commonwealth, in their enthusiasm for development, were founding their own technical institutions. It was right and proper that they should do so when the time was ripe, but in the development stage they would do well to take advantage of the opportunities they had to form overseas branches of the parent institutions in this country, who were only too pleased to give them the benefit of their long experience. Such a course had the advantage that there was no risk of lowering the professional standards which were so essential if the value of membership was to be retained. In his travels abroad he was glad to find that membership of the Institution was still a hallmark in the locomotive engineering profession which was greatly sought by railwaymen in all parts of the world. They very much appreciated the good wishes Mr. Menon had extended to the Institution, which would be an encouragement to them in their spirit of service to the great communities which they both served.

Lt.-Colonel Harold Rudgard, Past-President of the Institution, and a former Chief Officer (Motive Power), Railway Executive, who proposed the toast "The Guests," welcomed the Institution's many friends present at the luncheon. These friends had brought good will from many parts of the world and numbered among them Commissioners from many countries of the Commonwealth and Empire.

Mr. R. P. Biddle, Docks & Marine

Manager, Southampton, Docks & Inland Waterways Executive, in reply, said it was a great privilege to respond to this toast. He was particularly pleased that it had been decided to make the luncheon a Commonwealth occasion, as he, a Jersey man, was a representative of our oldest possession. Last year they had heard a brilliant speech by Mr. John Elliot, Chairman of the Railway Executive. He concluded by expressing appreciation of the hospitality the guests had received.

After being introduced by Mr. J. S. Tritton, Mr. C. M. Cock, President-Elect of the Institution, and General Manager, Traction Department, English Electric Co. Ltd., awarded a bronze medal for meritorious service to Mr. W. A. Agnew, a Past-President of the Institution.

Mr. Agnew on receiving the medal replied suitably.

Among those present were:—

Messrs. H. W. Adams, E. Adams, N. L. Ahlert, F. W. Abraham, W. A. Agnew, J. D. Aitchison, C. R. Atkins, W. Aish, J. T. Aldridge, H. F. Alcock, E. L. Allen, E. Allsop, H. Andrew, B. W. Anwell, J. C. Ansaldo, S. Appleyard, R. Arbuthnott, S. V. Arnold, W. J. Ash, R. M. Atkinson.

Messrs. H. Badger, G. H. Bailey, E. W. Baker, C. A. Baldwin, F. J. Bance, D. S. M. Barrie, S. Barber, L. W. Bardsley, A. T. Barnard, C. B. Barratt, T. W. Barrow, W. A. G. Bartley, D. Barton, W. J. Bassett-Lowke, E. Bateson, A. H. Baughan, A. E. Beachem, F. W. Beasant, P. C. Beasall, G. W. Beasley, G. A. Bell, A. E. Bennett, H. M. Bennett, J. P. Bennett, Brigadier P. K. Benner, Colonel F. J. Biddulph, Colonel Bigg-Wither, Messrs. G. F. F. Best, R. P. Biddle, S. J. Billett, C. N. Blakeney, R. W. Black, H. B. Blackstone, G. J. Blattman, R. Bonar, R. W. Boardman, J. K. Bridcut, W. B. Broadbent, A. B. Boath, R. Bindon-Blood, R. C. Bond, A. J. S. Brown, E. R. Brown, G. Brown, D. Brown, D. F. Brown, H. Brown, J. Graeme Bruce, P. J. M. Buchanan, H. R. Bucklan, Sir Archibald Boyd.

Messrs. T. W. Bragg, G. C. Brinkworth, Lt.-Colonel P. Brooke-Hitching, Messrs. C. Bullard, H. Burley, M. G. Burrows, A. J. F. Bunning, N. G. Cadman, Sir John Calder, Colonel K. Cantlie, Messrs. A. Campbell, H. R. Carver, D. Carvill, J. Cave, A. Challoner, A. Chapman, E. E. Chapman, Colonel V. A. G. Cecil, Messrs. A. J. Chambers, T. C. Chan, Colonel H. E. Clark, Messrs. H. G. Clark, E. Claxton, S. T. Clayton, M. A. Crane, A. T. Cheesley, A. S. Clegg, J. Clubley-Armstrong, R. Cobb, C. M. Cock, D. Cockburn, C. S. Cocks, G. C. Cocks, A. F. Collins, J. N. Compton, A. E. Cook, K. J. Cook, W. J. Cook, B. W. C. Cooke, D. F. Cooper, J. Cooper, R. S. Cooper, A. G. Corrie, P. Corrie, R. Corrie, E. H. Courpalais, C. E. Critchley, J. Crook, Brigadier W. H. Crosland, Messrs. R. C. Coudrey, H. P. R. Coveney, E. S. Cox, K. A. Cox, Lt.-Colonel Sir K. Crawford, Messrs. H. W. Crosthwait, B. Curl, R. Curl, J. B. Curry, G. R. Curry, J. Cuerel, T. A. Crowe, W. N. Crimp, T. E. Crimes.

Messrs. A. C. C. Damant, H. M. Dannatt, M. H. Davallou, E. O. Daun, A. S. Davidson, A. L. B. Dawson, A. J. Day, L. F. Day, H. Davies, L. T. Dawes, H. E. Dean, G. S. Deakin, A. E. C. Dent, F. Dickson, V. F. Dittich, W. H. Dixon, R. K. Dixon, K. S. Dobson, W. L. Drummond, R. G. Duncan, F. L. Dunster, R. J. Drury, Mr. Duff, Messrs. A. G. Dunn, W. Durban, J. Dykes-Hutchison, Messrs. H. J. Ebner, E. R. Edwards, H. N. Edwards, G. Eggleton, John Elliot, F. O. Ellis,



G. E. Embleton, H. O. Ernst, Lt.-Colonel H. B. Everard, Messrs. W. Featherstone, E. K. Featherstone, A. L. Feilding, J. J. Finlayson, G. A. Fitch, L. N. Flatt, A. P. Fitzjohn, I. C. Forsyth, G. W. Forder, J. G. Foster, A. Fossey, F. C. Fox, G. B. Fox, R. W. Foxlee, A. E. Frost, C. T. Fry.

Messrs. H. Gadd, A. G. W. Garraway, R. H. R. Garraway, W. Galloway, J. Gatto, Commander H. V. Gaud, Messrs. H. F. S. Gedge, A. J. Gibson, J. L. Gilbert, A. J. Gilliard, L. A. Ginger, R. K. Glascodine, G. Godfrey, G. T. Godfrey, J. Gold, K. M. Goodenough, K. W. C. Grand, R. T. Gray, E. W. Greaves, F. A. Greaves, Lt.-Colonel Max Gould, Messrs. J. S. Greenhalgh, H. Green, T. Greenwood, J. H. Gresham, S. R. Gresham, R. Gresley, J. R. Grimsdell.

Messrs. D. W. Hadfield, T. O. M. Halliday, J. Hannah, E. W. Hanslip, F. D. M. Harding, L. W. Harding, A. C. Hartley, J. F. Harrison, D. Harsley, G. T. Hart, R. F. Harvey, G. V. Harvey, Sir John Hartopp, Messrs. C. A. F. Hastlow, A. Hastie, M. S. Hatchell, C. G. Hatherly, L. Hawkins, H. L. S. Heap, H. J. Heagerty, W. H. Helms, A. Henderson, N. Henderson, F. A. Hewson, A. Himsley, F. Hill, J. Hill, F. Hodges, D. G. Hodges, A. E. Hoare, W. H. Hobbs, R. B. Hoff, S. Hogg, H. Holcroft, H. H. Holloway, A. G. Hopking, C. P. Hopkins, W. Hopkinson, W. G. Hornett, A. A. Howarth, Colonel W. H. Howlett, Messrs. D. Howard, C. Howe, P. Y. Hsu, H. S. Hundley, H. J. Hulme, J. S. Hunter, W. H. Hyde.

Messrs. A. C. Illston, F. B. Illston, C. C. Inglis, J. G. Inglis, E. Ingoldby, J. W. Innes, R. K. Innes, G. E. R. Jarman, G. C. Jackson, A. E. Jefferd, C. P. Jenkins, P. Jessop, F. E. Johnson, J. D. Johnson, A. Johnson, N. Johnson, C. L. Jones, E. L. Jones, S. P. Kay, W. G. Kefford, W. Kelway-Bamber, J. V. Keene, E. Kent, A. Kenyon, J. Kershaw, G. Kettlewell, G. G. C. Kerr, G. Key, A. S. King, A. J. D. Kitson, W. H. Kitson, H. T. H. Kingston, V. K. Krishna Menon, O. E. Kinsman, D. R. Lamb, A. Lamm, E. Lawton, H. Lawton, T. S. Lascelles, J. M. de Laszlo, F. Leach, A. C. W. Leaver, L. J. Le Clair, L. Ledger, R. H. Lee, K. H. Leech, Lt.-Colonel G. A. B. Leishman, Lt.-Colonel, J. D. Lewis, Messrs. M. Lewis, Sir John Lienhop, Messrs. F. Lord, S. E. Lord, W. D. Lorimer, M. C. Lloyd, A. B. Lloyd, E. E. Lloyd, J. H. P. Lloyd, G. J. A. Lindenburg, E. D. Lottin, R. Lyttelton, L. Lynes.

Messrs. A. B. MacLeod, G. C. Marsh, A. N. Marshall, E. K. Marshall, V. M. Marshall, J. H. Marshall, Sir D. MacMullen, Messrs. J. P. Maitland, Colonel F. Manley, Messrs. A. W. Manser, E. W. Marten, J. R. Martens, R. E. Marks, L. N. Mathur, H. G. May, F. G. S. Martin, C. Martin, F. Mason, R. E. G. Mayhew, C. R. Mayo, H. Melhuish, L. Melhuish, D. L. Metcalfe, J. P. Metcalfe, R. Metcalfe, F. O. Mellows, C. McCauley, W. McGraith, J. McGuigan, O. S. McNery, Major H. K. McKee, Messrs. W. McKie, P. Middlemass.

Messrs. T. C. B. Miller, W. Milne, A. G. Minty, W. Mitchell, W. J. M. Mitchellhill, W. J. Moodie, P. Moody, E. S. Moore, A. J. D. Morgan, E. J. Morris, W. H. Morton, J. J. Morrison, Lord Monkswell, Messrs. E. R. M. Mountagu, L. Monckton, V. S. Mullen, D. J. Muir, Colonel J. C. Muriel, Messrs. G. Mutch, F. T. Muncey, O. S. Naylor, H. V. S. Narroway, S. M. Nazir, R. Needham, G. H. Negus, R. E. Nelson, S. Newman, N. Newsome, J. C. Nisbett, O. S. Nock, A. W. Norman, L. B. Norrish, J. W. Norris, Captain A. R. S. Nutting, Messrs. W. R. Oaten, E. C. Ottaway, J. E. Owston, C. E. Parkes, J. C. Patterson, C. R. Pasley, G. H. Passey, S. J. Payne, G. Pettigrew-Smith, C. H. N. Pierce, W. N. Pellow, F. D. Playford, D. C. Plyer, E. Pollard, S. Potter, T. Potter, Doctor F. Prossio, Messrs. R. A. Powell, F. Pratt, R. H. Pritchard, E. Pugson, F. A. Pope, A. S. Quartermaine,

S. E. Quicke, F. Rada, J. A. Rae-Smith, H. W. Ralph, G. H. Ramsden, K. B. Rao, W. G. W. Reid, W. E. A. Redfern, B. Reed, T. A. Reed, A. Raworth, E. B. Rees, W. Rhodes, R. A. Riddles, J. W. Rimmer, Colonel G. Rigby, Messrs. J. L. Riorden, H. E. Roberts, A. E. Roberts, F. W. Roberts, J. F. Robertson, E. A. Robinson, M. D. Robinson, A. E. Robson, L. G. B. Rock, G. Rollason, Sir Reginald Robins, Messrs. F. B. Rose, W. F. Rowlinson, H. A. Rudgard, Lt.-Colonel Harold Rudgard, Messrs. C. Russell, W. J. Ruston, C. F. Ryan, Messrs. R. E. Sadler, L. J. Sanderson, Mr. Sandham, Messrs. A. C. E. Sandberg, C. H. S. Saunders, S. H. Saunders, F. Sedcole, S. G. M. Shallard, C. A. Shepherd, F. E. Sheppard, N. Schofield, J. S. Scott, A. G. Scouler, E. M. Simmonds, A. W. Simmons, G. S. Simmons, A. W. G. Smith, C. Leslie Smith, F. A. Smith, J. W. Smith, Cecil Smith, F. W. Smith, R. T. Smith, W. Gilmour Smith, G. T. Shoosmith, A. W. Shore, F. Shore, M. W. Shorter, L. Sibbit, W. Siberg, F. W. Sinclair, A. D. Smalley, W. A. Smart, R. A. Smeddle, W. A. Smyth, H. S. Smyth, H. Somerville-Smith, A. H. Sommer, B. Spencer, J. C. Spencer, Sir William Stanier, Messrs. J. Steele, Major Stephens, Messrs. C. I. Stevens, A. V. Stewart, W. Stewart, F. W. Still, T. Stockings, D. Stockings, Brigadier J. Storar, Messrs. R. Strick, J. Stacey, C. A. Soutar, F. L. Stafford, D. T. Strain, H. S. Stubbs, W. B.

Swayne, H. H. Swift, N. W. Swinnerton, Major-General G. S. Szilmer.

Messrs. P. N. Tarleton, J. B. G. Taylor, J. Taylor Thompson, O. I. Thomas, W. E. Thomas, G. Thomas, W. Thompson, D. Thoms, J. B. Thoms, D. Tobin, C. H. Torrance, L. J. Tichelly, C. L. Trask, J. M. Tully, J. W. Twentyman, A. K. Terris, J. W. Terry, F. Theakston, W. G. Tilling, Major E. B. Todd, Messrs. W. G. Trett, J. S. Tritton, T. L. J. Tritton, A. E. Turner, F. Turner, T. H. Turner.

Messrs. D. B. Vachs, Lt.-Colonel C. E. Vaughan, Messrs. J. F. B. Vidal, W. T. Vizer-Harmer, C. C. Waddington, C. C. H. Wade, W. J. Wakley, J. R. Walton, J. G. Want, S. B. Warder, W. W. Watkins, W. Watson, W. L. Watson, W. Walker, Colonel R. J. Walker, Messrs. R. G. Walmsley, F. A. Ward, M. Weiss, E. D. Wells, G. M. Wells, T. B. Welch, M. L. Weatherall, W. Weston, E. H. Westoby, F. Seymour Whalley, F. M. G. Wheeler, H. A. A. White, H. B. White, S. White, S. I. White, S. M. White, R. H. Whitelegg.

Messrs. I. L. Whittingham, R. S. Wild, P. A. Willeard, S. A. Wilkinson, H. Wilmot, A. G. Wilson, Major W. G. Wilson, Messrs. E. B. Wilson, W. A. Wilson, R. G. Wickham, A. V. Wilkin, A. Williams, J. P. Winder, A. J. L. Winchester, G. F. Wix, J. B. Woodman, C. Wordsworth, H. E. Wright.

## Great Northern Railway Company (Ireland)

*Stockholders pass resolutions urging Governments to pay interest on shares*

The annual meeting of the proprietors of the Great Northern Railway Company (Ireland), the 75th in the company's history, was held in Belfast on February 29. The Chairman, Lord Glenavy, presided and there was a large attendance of stockholders.

In his opening remarks the Chairman said that he could not give more information than the stockholders already had on the acquisition by both Governments, or the future of the company. The meeting agreed that the directors and the Stockholders' Protection Association representatives had made the strongest case possible for a just settlement with both Governments and that no better terms could have been obtained in view of the legal complications involved in this matter.

After some discussion a resolution proposed by the Stockholders' Protection Association was passed unanimously. The resolution urged that in view of the delay of the Governments of the Republic and Northern Ireland in completing the purchase, interest should be paid by the Governments on the guaranteed, preference and ordinary shares since January 1, 1951, the date from which the Governments announced that they would take over the company. "The undertaking has been run since that date," ran the resolution, "for the benefit of the general public to meet the Governments' obligations in respect of transport, the employees have been kept in full employment at increased pay, while the stockholders who are the owners have been prevented from re-employing the money representing the purchase price at which the undertaking has been valued by the Governments for their own purposes." The Chairman said that the resolution would be sent without delay to the Dublin and Belfast Governments.

The Chairman replied to a stockholder

that the question of discontinuing services had been considered at an extraordinary meeting of the company in December, 1950, and the directors had been authorised to give notice that the services would be discontinued.

The directors had then proceeded in accordance with the existing law to give notice of the discontinuance of the railway by putting in a formal application to the Transport Tribunal. In January, 1951, they were told by the Governments that it had been decided to acquire the railway.

### Grounds for Abandonment

The grounds for the proposal to abandon the railway were that the company was not able to finance it, but now the Governments had undertaken to keep it going until it was taken over, thus removing any reason that the company had for discontinuing services.

He pointed out that the railway had consistently said to the Governments that it was not just that the shareholders should be prohibited from realising their assets, and that the railway should be acquired by them for an unreasonable figure.

The Governments argued it was no use saying the figure was unreasonable. The law did not allow them to realise their assets until they had authority to discontinue their services.

The best way of making the Governments hurry, emphasised the Chairman, would be to accept the resolution proposed.

If the Governments accepted the resolution, it would influence them to complete the acquisition more promptly.

The directors retiring in rotation, Mr. J. M. Carroll, Senator Kennedy Stewart and Major C. A. M. Alexander, also the retiring Auditor, Mr. Edward Buckley, were re-elected.

## Parliamentary Notes

### Capital Investment in the Railways

During a debate on the second reading, on March 3, of the British Transport Commission Bill (to obtain authority for various minor works), Mr. Ernest Davies (East Enfield—Lab.) said the B.T.C. had been unable to carry out a very large part of its works programme because of difficulties in obtaining authority for a capital investment programme; the B.T.C. capital investment programme presented the greatest difficulties facing British Railways.

Apart from the main lines themselves, said Mr. Davies, a very large part of the railway system was in a deplorable state at the outbreak of war. In 1928—38, an average of only £4 million a year was spent on additional works and improvements, and on renewals the average was about £13 million a year, on a capital of over £1,000 million. Since 1945, the railways had had an inadequate share of the capital investment programme. The allocation of materials for the Railway Executive, particularly of steel and the most important materials for railway construction, renewal of rolling stock, and so on, had been quite insufficient, which meant that the priority awarded to the Railway Executive (through the B.T.C.) had not been high enough. The total amount spent in the three years since nationalisation had been only £143 million, of which £86 million was on rolling stock and £41 million on renewals.

### Suburban Electrification

Mr. Davies asked the Minister to press very hard the claims of the B.T.C. for an increased allocation in the capital development programme and for fairer treatment in the allocation of materials. The railways, he said, had accumulated the finest collection of Victorian relics. The prize of the collection was the suburban system between Liverpool Street and Kings Cross and Enfield, and Hertford via Tottenham, where the service was still slow and erratic, and sometimes entailed travelling in dirty and ill-lit coaches. Compared with that, the Emett Railway in Battersea Pleasure Gardens was the last word in modern travel. In view of the present high cost of tube construction he urged the Minister to consider first the electrification of the main-line suburban system.

After drawing attention to the achievements of British Railways since nationalisation in handling record traffics with a depleted staff, Mr. Davies said that the actual operation costs of British Railways to-day were two shillings in the pound less than before nationalisation.

The railways, he suggested, should introduce family holiday tickets, some special provision for booking in advance by special trains at a cheaper rate to enable working men's families to travel to holiday resorts by rail.

A solution of the B.T.C. financial problem, Mr. Davies continued, would lie largely in an extensive programme of capital investment, with a fairer allocation of it to the railways and a fairer allocation of materials.

### Level Crossings

Mr. Bernard Braine (Billerica—C.) said that the existing level crossing was dangerous and caused very serious road traffic difficulties. It was quite wrong for Parliament to authorise the B.T.C. (as provided for in the Bill under discussion, relating to a crossing at Barking) to increase the nuisance and dangers of existing level

crossings without some guarantee that both nuisance and danger would eventually be eliminated.

In 1950, Mr. Braine stated, there were 4,080 gated crossings over public roads; there were nearly 23,000 other level crossings. In 1950, there were 235 train accidents at level crossings. In railway legislation it had long been an established principle that there should be no level crossings over public carriage ways unless Parliament itself saw good reason for exempting the railway from the general law.

### Carriage Cleaning

Mr. Ernest Popplewell (Newcastle-upon-Tyne West—Lab.) said that when people complained about the filthy coaches on the railways today, they should note the date when the coaches were built. Many had been condemned as unfit for further service, but to meet traffic needs they were having to be brought back, and it required a lot of upkeep to keep them clean, and short of a big capital development in the installation of modern cleaning equipment.

Reference also was made by Mr. Popplewell to arrears of permanent way maintenance causing speed restrictions, to the necessity to alter the 1951 locomotive building programme through lack of steel, to the unpromising outlook for steel supplies in 1952, and to the problem of wages and incentives for railwaymen.

Today, he said, requests were made to enlarge the railway transport system while at the same time there was a redundancy of labour on the locomotive and engineering side owing to lack of steel. If the railways were to be an efficient national asset, the Minister should plan to give to the railway authorities the material they needed to organise the industry in the way they desired. It was important also to take the workers' representatives into consideration at all stages.

### Road Competition

Mr. Geoffrey Wilson (Truro—C.) said that road competition was not the sole reason why the railways had declined. It was not possible, in any time that they could contemplate, so to develop the roads that they could take all the traffic that could be taken, because the cost of compensation would be too large. The chief disincentives to traders and the travelling public using the railways were: inadequate station and depot facilities, including dirty passenger stations and rough handling of consignments; antiquated conditions governing the carriage of goods; and railway charges.

It would be quite impossible, Mr. Wilson added, for the road sections of the industry to support the railways, because they had not the capital. There was only £70 million worth of capital in the Road Haulage Executive, as against £1,180 million in the British Transport Commission. The R.H.E. controlled only between 5 and 6 per cent. of the vehicles on the roads.

Mr. David Jones (The Hartlepool—Lab.) said that the steel shortage affected the general railway efficiency, lack of proper maintenance, and made it impossible for the railway industry fully to use the plant and equipment of the railway workshops, and, as a consequence, created redundancy in skilled craftsmen. All the rearmament measures would be useless if transport broke down because of shortage of raw materials to make it efficient.

Some 127,000 railway wagons in daily use were nearly 40 years old. Nearly 40 per cent. of the total locomotive stock was over the normal age in 1948. With-

drawals by the end of 1950 were about 2,100, leaving 5,800 veterans still trying to do their best to haul trains. In 1948, the Railway Executive estimated that they would require at least 300,000 tons of steel rails a year to maintain renewals. They had never been able to reach that figure in one single year. In addition, structures had to be renewed. The Minister should exert all possible pressure on the Government to make quite sure that much more steel was allocated to the railways.

Mr. Stephen McAdden (East Southend—C.) hoped for a more realistic attitude on the part of some employees of the Railway Executive and for a greater influence to be brought to bear by the unions.

### Cut in Coach Building Programme

Mr. Peter Smithers (Winchester—C.) asked the Minister to discuss with the Railway Executive or the Commission the situation at Eastleigh as a result of the decision to curtail the passenger coach building programme. He had heard that the result of these cuts would be that one man in three would be redundant. He believed that 527 men were under notice at Eastleigh Carriage Works.

Mr. Alfred Barnes (East Ham South—Lab.) said he did not think there was any restriction on the amount of steel available for wagon construction. Steel not consumed in wagon production could be switched to passenger coach construction. Some of the works dealt with in the Bill under discussion were for the Tilbury Line; he inquired about the situation as to the Tilbury Line electrification.

### Government Policy on Railways

Mr. J. S. Maclay (Minister of Transport) said that the Tilbury Line electrification had not been stopped, in so far as it was moving when he took office.

With Lord Leathers, Secretary of State for the Co-ordination of Transport, Fuel & Power, he had been working on the question of steel allocations from the day they held office. He believed the railways had got as good a share of what was available as anybody could have got in the circumstances.

There was, said Mr. Maclay, no specific allocation of steel last year to anybody of the kind made this year. That was one of the real troubles that the railways got into in the last three months of 1951. There was no system of allocation that could really ensure deliveries last year.

### Allocation of Resources

Mr. Maclay said the Government would do its best to see that the railways got as much steel as possible, always bearing in mind the relative urgency of national needs. As to Eastleigh, a special problem, he would give very careful thought to it, as far as it lay in his power to influence what happened there.

In 1951, he continued, the allocation of certain of resources to the Railway Executive was about the same as in 1950, and for 1952 it would be slightly higher than that of 1951. That was in terms of money. It might mean slightly less in terms of work done. He hoped that conditions would make it easier for the proper renewal of stock and all that was necessary.

### Branch Line Closing

The closing of branch lines must obviously be pursued where they were completely uneconomic. Much unnecessary difficulty was run into by the Railway



Executive in the last few years because there was not enough pre-consultation with those who were going to be affected. Recently it had been decided by the B.T.C. that reference would always be made to Consultative Committees before closing branch lines.

The second reading was agreed to without a division.

#### Railway Fares

After Mr. Harry Crookshank (Leader of the House of Commons) had announced on March 6 the business for the following week, Mr. Ernest Davies (East Enfield—Lab.) asked, in view of the sudden and sweeping rise in London fares that week, and the proposal to raise railway fares further on May 1, if the Leader of the House would provide time for a debate on railway charges.

Mr. Crookshank: No. We shall be busy enough on the Budget.

Mr. Davies said he was not suggesting the next week, but before May 1, when the further rise took place. He pointed out that when the previous Government were in office the last debate on fares took place in Government time.

Later on March 6, Mr. Davies, Mr. F. Beswick (Uxbridge—Lab.), Mr. Austen Albu (Edmonton—Lab.), Mr. John Parker (Dagenham—Lab.) and Lt.-Colonel Marcus Lipton (Brixton—Lab.) tabled the following motion for discussion at an early date: "That this House views with alarm the recent heavy increases of transport fares in the Metropolitan Area, which has placed an intolerable burden on millions of workers, and calls upon the Minister of Transport immediately to appoint a special Committee to investigate and report on the separate problem of fares in the Metropolitan Area and, in relation thereto, the wider question of State assistance to meet the heavy capital charges of the Transport Commission."

#### London Fare Increases

The Minister of Transport, Mr. J. S. Maclay, on March 10, in reply to a number of questions, said that the increases in London Transport fares were made by the B.T.C. under the authority of a scheme confirmed by the Transport Tribunal after a public inquiry. It would be inconsistent, he added, with the intentions of the Transport Act, as to the control of the Commission's charges, for the Central Transport Consultative Committee to review the Tribunal decisions, or for him to require the Tribunal to review the operation of a scheme they had just confirmed. The scheme, however, laid down maxima within which the B.T.C. could fix fares, and this covered alteration of fare stages which seemed to be a main cause of complaint. Fare stage alterations could properly be referred forthwith to the Consultative Committee, and he was so referring them. Under the Transport Act, no action other than reference to the Consultative Committee was open to the Minister.

#### Alteration of Fare Stages

After Mr. C. W. Gibson (Clapham—Lab.) had pointed out that some of the fare increases in the London Area were as high as 100 per cent., and Mr. E. Shinwell (Easington—Lab.) had asked who was responsible for revising fare stages, Mr. Maclay explained that the scheme put forward to the Transport Tribunal included certain intentions as to fare stages. They were considered by London Transport Executive and there were certain discretions left to the Commission by the

scheme finally approved by the Tribunal. That discretion made it possible for him to make the statement he had made. The Opposition should understand, because it is under their Act.

Mr. Charles Doughty (East Surrey—C.) said that the new charges scheme removed the right to travel to different London termini. He also suggested that travel to work be made a charge against income tax.

Mr. Ernest Davies also pointed out that the way in which the Tribunal findings had been carried out by the Commission had caused great dissatisfaction. The matter should be referred back to the Tribunal. Mr. Maclay replied that there was a case for putting something to the Consultative Committee, which he proposed to do.

Mr. Henry Brooke (Hampstead—C.) asked the Minister to consider rendering it more difficult for a nationalised undertaking to make fresh impositions on the travelling public without reference to Parliament.

#### British Railways Provincial Fares

Mr. Davies then asked the Minister if he would refer to the Central Transport Consultative Committee the proposal to raise fares on British Railways on May 1.

Mr. J. S. Maclay wrote in reply that it would be appropriate to refer to the Committee only some particular matter which has arisen from exercise by the B.T.C. of the discretion allowed by the passenger charges Scheme. The Commission had not yet exercised their discretion in relation to railways outside London.

### Staff & Labour Matters

#### Railway Shopmen's Wages

At the hearing before the Industrial Court, on March 4, of the claim for improved rates of pay for railway shopmen, the case for the Employees' Side of the Railway Shopmen's National Council was presented by Mr. R. Openshaw of the Confederation of Shipbuilding & Engineering Unions, and Mr. M. Pounder of the N.U.R. also gave evidence. The spokesman for the Employers' Side of the Council was Mr. W. P. Allen, Member of the Railway Executive.

The Employees' Side submitted that the Railway Executive offer to increase shopmen's wages by 8 per cent. from September 3, 1951, was inadequate, and did not meet the claim for a substantial increase in the rates of pay of all grades employed under railway workshop conditions. The principal reason for the claim was stated to be the steady deterioration in real wages through the rise in the cost of living, and the fact that the present wages paid to shopmen were much lower than those of similar grades in other industries.

Mr. Allen explained why the Railway Executive had had to make an offer in respect of railway shopmen which was broadly in line with the increase granted to other grades of railwaymen as a result of Railway Staff National Tribunal Decision 13.

Mr. Pounder stated why the N.U.R. had decided to accept the Railway Executive offer to raise railway shopmen's wages 8 per cent; he deprecated any variation in the increases granted to the various grades of railway workers and in the date from which such increases should take effect; and he claimed that widespread dissatisfaction existed amongst railway shopmen that the offer had not been put into effect. The N.U.R., it was submitted, represented

the overwhelming majority of railway workshop grades, the ratio of membership being approximately three to one, with some 80,000 shopmen members of the N.U.R.

### London Transport Light-Alloy Stock in Service

The first lightweight railway cars built for use in this country went into service on the District Line, London Transport, on March 10. Four of them are operating in conjunction with two steel driving cars in a six-car unit.

The new cars, which were described fully in our May 4, 1951, issue, have bodies of aluminium alloy of the aluminium-magnesium-silicon type, and form part of an order for 90, the largest application of aluminium, so far, in the British rolling stock industry. In profile and general finish they are similar to the "R" type steel cars, but the opportunity has been taken to restyle and reposition the fluorescent light fittings to give better diffusion of light. In addition, the roofs of the aluminium cars are unpainted.

The construction of the cars is of the stressed-structure type, as standardised by London Transport for steel cars, but the large-scale use of aluminium has involved the adoption of new techniques and manufacturing methods to take maximum advantage of the scope offered by this material. They are being built by the Metropolitan-Cammell Carriage & Wagon Co. Ltd., who collaborated with the Metals Division of Imperial Chemical Industries Limited in the design under the general direction of the late Mr. W. S. Graff-Baker, Chief Mechanical Engineer (Railways), London Transport Executive.

Eventually it is intended to form two complete eight-car trains of lightweight stock so that performance data can be obtained; the remaining cars will run interchangeably with steel cars.

### Contracts & Tenders

A recent Reuters report from Rio de Janeiro states that the President of the Republic has authorised the Central Railway of Brazil to call for public tenders for the supply of 200 electric train units. It is also stated that the President recommended the greatest urgency in track relaying and the purchase of equipment for track maintenance.

In connection with the re-equipping of parts of the Western Section of the Southern Region of British Railways, the Hackbridge & Hewitt Electric Co. Ltd., has received an order for the supply of 120,000 kW. of glass bulb rectifiers consisting of forty-eight 2,500 kW. sets. As recorded in our August 10, 1951, issue, these rectifiers will be installed in 29 substations. The substations have individual capacities of from 2,500 kW. to 10,000 kW. for feeding the main and suburban traffic lines from Waterloo to Hampton Court junction and branch lines including those to Guildford, Staines, and Windsor. The incoming supply will be 33 kV. and the output to the track 660 volts d.c., but provision is to be made for the equipment to operate at 750 volts d.c. at a later date.

The company's rectifiers have been in railway traction service since 1932 and now an aggregate capacity of over 111,000 kW. of this equipment is supplying traction loads in the Greater London area. The



British Railways contract, and others in hand, will increase this total to almost a quarter of a million kilowatts in this area alone.

A paragraph in our March 7 issue stating that a call for tenders for broad-gauge and metre-gauge wagons had been issued by the Director-General, Railways, Government of Pakistan, referred to the possibility of obtaining the tender documents at the Office of the Pakistan High Commissioner in London. We now understand that the documents are not available at this address, though they may be obtained from the Railway Division of the Ministry of Communications, Government of Pakistan, Karachi.

The Board of Trade Special Register Information Service, recently stated that the Victorian Railways Commissioners have issued a call for tenders (No. 59197) for the supply and delivery of multiple-unit motor and trailer cars as detailed below:—

- 90 second class motor cars complete
- 90 first class trailer cars complete
- 30 second class trailer cars complete
- Spare parts for these cars

Tenders close at 11 a.m. on Wednesday, August 20, and must be deposited in the tender box, Railway Administrative Offices, Melbourne, or posted to the Secretary for Victorian Railways, Melbourne, C.I., to enable them to be deposited, in the tender box by the time and date specified. A copy of the tender documents is available for inspection by representatives of United Kingdom manufacturers at the Board of Trade, Commercial Relations & Exports Department.

## Notes and News

**Vacancy for Running Superintendent.**—Applications are invited for the post of Running Superintendent for the Southern Railway of Peru. Candidates must be under 50 years of age. See Official Notices on page 307.

**Institute of Welding, South London Branch.**—The sixth Annual Dinner of the Institute of Welding, South London Branch, will be held in the ballroom of the Charing Cross Hotel, on Friday, March 28, at 7.30 p.m.

**Institution of Civil Engineers.**—Mr. J. C. Loach will read a paper on "Recent Developments in Railway Curve Design" at a meeting of the Institution of Civil Engineers, Great George Street, Westminster, S.W.1, at 5.30 p.m. on Thursday, March 27.

**Viktorina and Her Hussar.**—The Great Western Railway (London) Operatic Society has built up a very high reputation for the excellence of its performances, but last week's production—the twenty-fifth by the Society—of "Viktorina and Her Hussar"—established a new high level. This colourful romantic musical play by Alfred Grunwald and Dr. Fritz Löhner-Beda is an ambitious undertaking for any amateur society, but there was nothing lacking in the presentation at the Scala Theatre. The principal roles were admirably taken by Miss Shirley Hichens as Viktorina, Mr. Raymond Fenn as Stefan Koltay, Mr. Frederick Toon as the American Ambassador, Miss Vera Flatman as Riquette, and Mr. Walter Jenkins as Janzci. A special word of praise must be

given to the performances of Miss Jane Munday as O Lia San and Mr. Ronald Ratcliffe as Ferry Hegedus for the excellence of their interpretation. The chorus work and production generally were of a standard seldom seen in amateur shows, and both Mr. Frederick Lloyd, the Producer, and Mr. Stanley Cheffins, the Musical Director, are to be congratulated on the success which attended their efforts.

**Breakdown in Bramhope Tunnel.**—The 8.50 a.m. Newcastle-Liverpool train broke down for 90 min. in Bramhope Tunnel, near Harrogate, N.E. Region, on March 10. The 11.45 Harrogate-Leeds train was diverted by Wetherby, but because of an accident to its fireman, missed its London connection at Leeds. A special train was therefore put on at Leeds to take passengers to Doncaster, where they caught another connection.

**Presentation to Mr. H. R. Garth.**—At a gathering on March 3, Mr. H. A. Short, Chief Regional Officer, North Eastern Region, presented a George II silver loving cup to Mr. H. R. Garth, who retired recently as Assistant Civil Engineer, North Eastern Region. Among those present were Mr. J. Taylor Thompson, Civil Engineer, London Midland Region, and Mr. F. E. Harrison, a former Assistant Civil Engineer, L.N.E.R.

**Argentine Railways Liquidation.**—Mr. R. Montgomery, a former officer of the Buenos Ayres Great Southern Railway and now leading legal and commercial representative in Argentina of the liquidators of the former British-owned railway companies, is in London to discuss with the liquidators what it is hoped may be the final stage of the liquidation. He has described the transactions involved as of

"unusual magnitude." They have covered the transfer not only of the railways but also of interests in some 20 affiliated or subsidiary undertakings. More than 1,500 lawsuits and thousands of private claims have been concluded. The discussion of the receipts and expenses of the companies during the period of their administration for the account of the national government has also been necessary. Mr. Montgomery stressed the friendly nature of the discussions between the Argentine government and the companies. The delay in settlement mainly arose from the complexity of the operation and the exigencies of administrative routine.

**U.S.A. Railway Strike to End.**—The three railway unions which went on strike on March 9, causing a cessation of services on the western lines of the New York Central, were ordered on March 11 by a federal judge in Cleveland, Ohio, to end the strike immediately and to keep it from extending to other lines. Granting an application by the Department of Justice for a restraining order, the judge said refusal to issue it would "endanger national security and cause irreparable injury." The unions told their members to return to work, in compliance with the court order.

**Third Class Sleeper Accommodation Complaint.**—When Lord Hurcomb, Chairman of the British Transport Commission, visited the House of Commons on March 10 to meet an all-party Tourist & Resorts Committee of M.P.s, he heard a complaint from Mr. Nigel Nicolson, Conservative M.P. for Bournemouth and Christchurch East, that on some occasions men and women who were strangers had to share compartments in British Railways third class sleeping cars. He suggested that cur-

## Metrovick Electric Locomotives for Brazil



The first of fourteen 1,070 h.p. mixed-traffic Bo-Bo locomotives for the Rede Mineira de Viacao, Brazil, built at the Metropolitan-Vickers-Beyer Peacock works, Stockton-on-Tees, being loaded at Liverpool for shipment to Brazil

## OFFICIAL NOTICES

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is exempted from the provisions of the Notification of Vacancies Order, 1952.

**RAILWAY DRAUGHTSMAN-SURVEYOR.** Required by large firm Rly. Contractors. Applicants must have ability to carry out site surveys, plot same in Layout form to good working scale (detailing for manufacture of turnouts, etc., done by other Draughtsmen), capable of full use Theodolite and Level. Duties to include site supervision of Contracts in progress. Age 25/30 years. Man with British Standard Specification experience preferred. Conditions of employment to include provision of car, all travelling and general expenses. Five-day week on rota system. Comprehensive Superannuation Scheme, etc. Write in first place, stating age, experience and salary required.—Box 425, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

**WE** buy used or unserviceable Steel Files at good prices in lots of 2 cwt. or more.—THOS. W. WARD LTD., Reusable Steel Dept., Albion Works, Sheffield.

**BOUND VOLUMES.**—We can arrange for readers' copies to be bound in full cloth at a charge of 25s. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press Limited, 33, Tothill Street, London, S.W.1.

tains should be provided when such sharing was unavoidable. Lord Hurcombe agreed that the practice was wrong and promised that it should be looked into.

**No Change in Bank Holiday Date.**—Mr. Leslie Taylor, Deputy Chairman of the British Travel & Holidays Association, has stated that the Government has decided not to change the date of August Bank Holiday. The Association, he continued, will continue to press for the change and for the extension of the holiday season. It is still discussing with the British Transport Commission the desirability of reducing holiday railway fares in holiday months other than July and August.

**February Pig Iron and Steel Production.**—The British Iron & Steel Federation announces that steel production in February was at an annual rate of 16,281,000 tons, compared with 15,234,000 tons in January and 16,952,000 tons in February, 1951. Pig iron production was at an annual rate of 10,263,000 tons (10,319,000 tons in January and 9,687,000 tons in February, 1951). The expansion of pig iron production, the Federation states, is again being limited by a deficiency in coke supplies.

**Mullard Valves at the Physical Society's Exhibition.**—Several oscillator circuits incorporating Mullard valves will be shown by Mullard Limited at the forthcoming Physical Society's Exhibition in London from April 3 to 8. Demonstrations of interest to users of radio communication equipment will include a local oscillator assembly and a high stability crystal-controlled master oscillator with automatic frequency correction. Ultrasonics will be represented by an improved vibrator of the St. Clair type. The company will also show a range of Geiger counter tubes for detecting radio activity.

**Excursions to Grand National.**—The London Midland Region will put on 20 special trains to the Grand National. Services will be from Euston (four trains), Watford, St. Albans, Birmingham, Stoke, Manchester (three trains), Oldham, Blackpool, Carlisle, Derby, Leicester, Nottingham, and many other stations. Day excursion fares will apply except from Euston, which will provide three expresses (first class only) at an

**RUNNING Superintendent** for the Southern Railway of Peru, must have served apprenticeship railway workshop and ten years' experience as an administrative and technical officer. Knowledge of Spanish desirable. Must be under 50 years of age. Apply Secretary, THE PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

**LOCOMOTIVE, CARRIAGE and WAGON SENIOR DRAUGHTSMAN** 30/35 years of age. Qualifications: Must have served a full general apprenticeship in an Engineering workshop (preferably Railway) and have had at least five years' drawing office experience with some time in an executive capacity. A knowledge of Spanish an advantage. Future prospects. Apply to the Secretary, PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

**DRAUGHTSMAN** required, preferably with experience of railway rolling stock design. Salary in accordance with previous experience and qualifications.—CRAVENS RAILWAY CARRIAGE & WAGON CO. LTD., Darraill, Sheffield, 9. Apply Employment Exchange.

**DRAUGHTSMAN** required by Gloucester Railway Carriage & Wagon Company, Gloucester, preferably with Steel Car or Diesel Car experience. 5-day week. Pension Scheme in operation. Apply LOCAL MINISTRY OF LABOUR AND NATIONAL SERVICE.

inclusive rail fare and meals charge. The fourth train from Euston will be a third class day excursion plus a dining car charge. Dining cars will also be attached to the trains from Watford, St. Albans and Leicester.

**British Railways Coal, Iron and Steel Carriages.**—British Railways cleared 390,660 tons of coal from deep-mined pits and opencast sites during the 48 hours ended 6 a.m. on Monday, March 10, making a total of 3,175,160 tons for the week. During the week ended March 1, 203,955 tons of iron and steel were conveyed from the principal steelworks.

**A.C.E.C. Representation in Mexico.**—Industrimex S.A., Paseo de la Reforma 1-462, Mexico City, 1, has been entrusted by Belgian Electric Sales Corporation, New York, which is an associate of Ateliers de Construction Electriques de Charleroi, with the exclusive representation for the sale in Mexico of all types of A.C.E.C. motors and electrical equipments and all special A.C.E.C. apparatus.

**Closing of London Midland Region Stations.**—On March 31, Elford Station (between Tamworth and Burton) London Midland Region, will close for all traffic. On April 7 the following London Midland Region Stations will be closed: Cotehill (between Appleby and Carlisle) closed to all traffic; Calthwaite, and Southwaite (between Carlisle and Penrith) closed to passengers only; Dunham Hill (between Chester and Helsby) is closed to passengers, and for parcels and passenger train merchandise; Chiltern Green for Luton Hoo (between Luton and Harpenden) closed to passengers, and for parcels and passenger train merchandise.

**Youth Employment Service.**—At the Richard Cobden School, N.W.1, on February 28, a large number of boys and their parents and friends attended a meeting arranged in conjunction with the London County Council Youth Employment Service, at which Mr. C. S. McLeod, Regional Staff Officer, Eastern Region, British Railways, spoke on "Working on the Railways." Mr. McLeod explained the scope of a number of different types of work on the railways and the prospects open to lads who desire to follow a railway

**THE PERUVIAN CORPORATION LIMITED—CIVIL ENGINEERING DRAUGHTSMAN** for Southern Railway of Peru, age 25 to 30. Knowledge of instrument work, design of reinforced concrete and steel constructions and some practical experience. Duties not confined to drawing office. Scope for energetic worker. Apply to the Secretary, 144, Leadenhall Street, London, E.C.3.

**A LEADING Mutual Life Assurance Office** requires a number of young men for training as Inspectors. Exceptional opportunities for advancement to those possessing a sound education and good personality, and who are prepared to work hard and prove their ability. Write stating age to Box 419, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

**WORKS MANAGER** for Locomotive Workshops, Southern Railway of Peru required. Must be a Mechanical Engineer with practical locomotive workshop experience. Preferably 35/40 years of age and with a knowledge of the Spanish language. Apply to the Secretary, PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

**JUST PUBLISHED.**—Twenty-Five Years of the North Eastern Railway, 1898-1922. By R. Bell, C.B.E., Assistant General Manager, N.E.R. and L.N.E.R. Companies, 1922-1943. Full cloth. Cr. 8vo. 87 pages. 10s. 6d.—*The Railway Gazette*, 33, Tothill Street, London, S.W.1.

career. He introduced some young workers in the early stages of their railway training, and the boys attending the meeting were encouraged by Mr. McLeod to put questions to him or to the young employees on any matters concerning railway employment. A short film was shown on the career of a young railwayman in training as an engine cleaner, illustrating his subsequent promotion to fireman and engine driver on important main-line trains.

**The Glacier Metal Co. Ltd. and Scottish Precision Castings Limited.**—The Glacier Metal Co. Ltd. has acquired, as from December 31, 1951, the capital of Scottish Precision Castings Limited, Hillington Estate, Glasgow, manufacturer of aluminium and brass die castings. Scottish Precision Castings Limited will retain its own name and identity, although its products will be sold in all markets at home and overseas through the Glacier commercial and sales organisation, which organisation is, in fact, already in contact with the main markets of Scottish Precision Castings Limited. Both companies already have many customers in common.

**Magnetic Instruments for Inspection.**—The prototype of a new magnetic crack detector will be shown at the Physical Society Exhibition in London from April 3 to 8 by the Metropolitan-Vickers Electrical Co. Ltd. The instrument requires no external supplies and is suitable for specimens up to 18 inches in length. The Metroflux magnetic sorting bridge will be exhibited in a new and improved version that is more readily portable. Its purpose is to detect differences in the position and condition of apparently similar steel parts. Other exhibits on the company's stand will be representative of the latest developments in electron microscopy, wave-form analysis and the mass spectrometer.

**Electrical Testing and Recording Apparatus.**—Evershed & Vignoles Limited will exhibit at the Physical Society Exhibition in London from April 3 to 8 a new Megger insulation tester for voltages of 1,000, 2,500 and 5,000. In this instrument the generator used in other Megger insulation testers is replaced by a static rectifier operating from a.c. mains in conjunction with a step-up transformer. Among the

company's other exhibits will be a quick-response recorder with a maximum sensitivity of plus or minus one millivolt a.c. or d.c. The instrument is designed to follow frequencies up to 10 cycles per second and is intended for working from high-speed thermocouples or from strain gauges. In addition to these exhibits, the company will show a selection of servo motors, fractional horsepower motors, and the Evershed-Straub degassing condenser for use in the measurement of steam purity by the electrical conductivity method.

**Signalling on the Netherlands Railways.**—It was stated on page 268 of the article "Multiple-Aspect Speed Signalling, Netherlands Railways," in our March 7 issue that the illustration on page 265 showed a signal at s'Hertogenbosch station, with medium speed limitation marked on the background plate. In fact the signal illustrated is at another station, but in the second illustration (page 266) is seen a background plate so marked. The signal referred to on page 268 was shown in the article which appeared in our issue of March 2, 1951.

### Forthcoming Meetings

March 14 (Fri.).—Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, at 5.30 p.m. Discussion on "Basic Engineering Standards and their Place in Design," by Captain G. C. Adams.

March 14 (Fri.).—Society of Chemical Industry, Corrosion Group, joint meeting with A.B.E.M., at the Iron & Steel Institute, 4, Grosvenor Gardens, S.W.1, at 10 a.m. and 2.30 p.m. Papers will be presented and discussed on "Protective Coatings (Metallic and Paint) Under Conditions of Atmospheric Corrosion."

March 15 (Sat.).—British Railways, Southern Region, Lecture & Debating Society. Visit to Toton marshalling yard.

March 19 (Wed.).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, Storey's Gate, S.W.1, at 5.30 p.m. Annual General Meeting. "The Application of Welding to Locomotive Boiler Copper Fireboxes," by Mr. J. F. Harrison, Mechanical & Electrical Engineer, L.M. Region.

March 19 (Wed.).—Permanent Way Institution, London Section, at the Railway Executive headquarters, 222, Marylebone Road, N.W.1, at 6.30 p.m. Discussion: "Co-operation between Works and Permanent Way at the Inspector's Level," by Messrs. C. S. West and F. Lloyd.

March 19 (Wed.).—South Wales & Monmouthshire Railways & Docks Lecture & Debating Society, in the Angel Hotel, Westgate Street, Cardiff, at 6.30 p.m. Transport Quiz. Question Master: Mr. H. G. Bowles, Assistant Chief Regional Officer, Western Region.

March 20 (Thu.).—Diesel Engine Users Association, at Caxton Hall, Westminster, S.W.1, at 2.30 p.m. "The Internal Combustion Engine from the User's Point of View," by Mr. A. K. Bruce.

March 21 (Fri.).—Institute of Transport. Annual Dinner, at the Connaught Rooms, Great Queen Street, W.C.2, at 7 for 7.30 p.m.

## Railway Stock Market

Budget considerations have dominated markets, and now that the position is more clearly defined, buyers are in evidence. The recent downtrend in values has given place to a rally because it appears that as far as markets were concerned the fall in prices in evidence in recent weeks more than discounted the effects of the Budget. Although E.P.T. will prevent higher dividends in many cases, most companies have reasonable prospects of keeping dividends at last year's rates, and their shares offer attractive yields at current prices. Companies whose dividends in recent years have been conservative will be able to pay more in future, if earnings are maintained, and if the directors feel that a more liberal policy is justified.

The market believes that now the Budget details are known, there will be many important new issues by industrial companies, many of which urgently need more money to finance higher costs of materials, and so on. The success of the big Imperial Chemical issue has shown that issues confined to shareholders are popular if directors are able to make a favourable estimate of dividend prospects. Many companies have postponed new capital decisions until after the Budget; and with the position clear as to E.P.T., dividend prospects now can be estimated more clearly.

Foreign rails, as was to be expected, have attracted only moderate attention this week; but as they are not affected by E.P.T. they may tend to come in for better demand in due course. Antofagasta ordinary stock has changed hands around 16 and the preference stock around 65½, but United of Havana stocks receded on the latest news from Cuba and the 1906 debentures were back to 18.

There was more attention given to Manila Railway debentures on the reports that Manila Railroad are planning a scheme to meet interest arrears on its 5 per cent. mortgage bonds by funding the arrears by an issue of 15-year peso bonds; but full details, including the proposed rate of interest on the new bonds, will have to be awaited. Manila Railway "A" debentures have risen to 70 and the "B" debentures to 63, while there was a good deal of speculative activity in the preference shares, which however fell back

later to 7s. 6d., while the 1s. ordinary shares changed hands around 2s.

Guayaquil & Quito 5 per cent. bonds were dealt in around \$33, Paraguay Central 6 per cent. prior debentures at 22, and La Guaira & Caracas ordinary stock at 5½. International Railways of Central America stocks were hardly tested by business, awaiting the outcome of the annual meeting on March 26.

San Paulo 10s. units were steadier at 13s. 6d., Brazil Rail bonds strengthened to 5½ and Leopoldina were firm with the ordinary at 11½ and the preference 28½. Leopoldina Terminal debentures were 18½ and the ordinary shares around 9d. Nitrate Rails shares were 22s. and Taltal 18s. 3d.

Canadian Pacifics strengthened to \$67½ with the better general trend in dollar stocks. The good yield on the 4 per cent. debentures and also on the 4 per cent. preference stock, both quoted in sterling, is attracting much attention. Both have fallen in price in recent months, because of the general trend in fixed-interest securities, which is governed largely by that in British Funds. Until the latter rally there is little prospect of good recovery in prices of Canadian Pacific debenture and preference stocks, but they have good investment merits and interest requirements are covered by a big margin.

Road transport shares were easier, and at the time of going to press, West Riding have receded to 34s. and Lancashire Transport to 47s. 6d. Southdown were 80s. and Devon General changed hands at slightly over 110s. B.E.T. deferred stock was £37½.

Engineering shares rallied after easing, including Guest Keen, Vickers, and T. W. Ward, because of good prospects of dividends being maintained, and of attractive yields on this basis. The market expects the results of Vickers and also those of Cammell Laird, due in a few weeks, to create a good impression.

Locomotive building and engineering shares have been inclined to strengthen. Beyer Peacock were 31s., Hurst Nelson 51s., Birmingham Carriage 33s. 9d., Vulcan Foundry 22s. 3d., North British Locomotive 16s. 1½d., Gloucester Wagon 12s. 9d., Charles Roberts 21s. 10½d., and Wagon Repairs 5s. shares 11s.

Traffic Table of Overseas and Foreign Railways

Railway	Miles open	Week ended	Traffics for week		No. of week	Aggregate traffics to date	
			Total this year	Inc. or dec. compared with 1949/50		Total 1950/51	Increase or decrease
South & Central America	Antofagasta	811	29.2.52	£ 129,190	9	£ 1,232,980	£ 477,430
	Costa Rica	281	Jan., 1952	c1,495,633	31	c8,756,306	c1,420,052
	Dorada	70	Jan., 1952	34,370	4	34,370	7,187
	Inter. Ctl. Amer.	794	Jan., 1952	\$1,315,737	4	\$1,315,737	\$393
	Paraguay Cent.	274	28.12.51	G289,547	26	G8,823,911	G3,556,978
	Peru Corp.	1,050	Feb., 1952	\$7,931,000	35	\$65,979,000	\$5,211,000
	" (Bolivian Section)	66	Feb., 1952	Bs.15,175,000	35	Bs.126,266,000	Bs.30,009,000
	Salvador	100	Nov., 1951	c140,000	22	c635,000	c112,000
	Taltal	147	Feb., 1952	\$2,531,000	35	\$17,457,000	\$4,860,000
	Canada	23,473	Jan., 1952	17,157,000	4	17,157,000	1,521,000
Canada	Canadian National†	17,037	Jan., 1952	11,534,000	4	11,534,000	618,000
	Various	167	Jan., 1952	23,812	42	332,580	46,612
Various	Barri Light*	536	Dec., 1951	378,543	39	2,473,919	208,373
	Gold Coast	277	Dec., 1951	52,821	26	357,578	122,355
	Mid. of W. Australia	13,398	9.2.52	1,932,211	45	85,981,236	8,449,342
	South Africa	4,744	Oct., 1951	2,172,730	17	—	—

\* Receipts are calculated at 1s. 6d. to the rupee

† Calculated at \$3 to £1